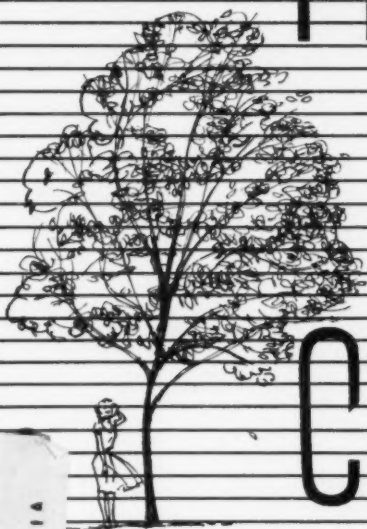


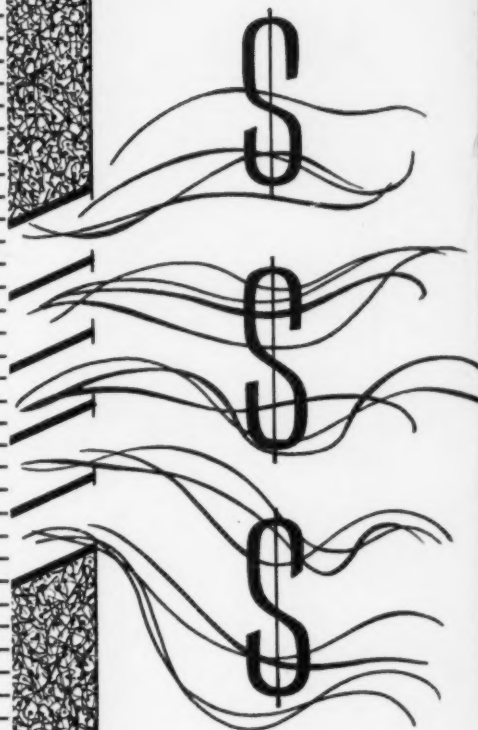
# The REFRIGERATION & AIR-CONDITIONING Business

JULY 1959

Fresh  
Air  
Costs  
Money



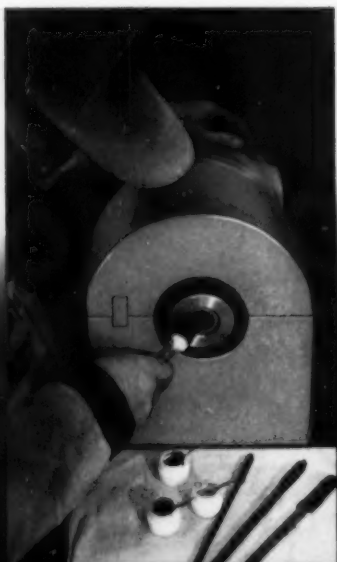
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... see page 42

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**PERFECTION BEYOND THE "N<sup>TH</sup>" DEGREE!**



Through these dies passes the world's most perfect thin-wall tubing!

To achieve this perfection, the mandrils and dies used by Viking not only have been engineered to a degree of precision far greater than specifications require . . . but they are constantly checked to fantastically small limitations on special machinery built by Viking for this purpose.

The advanced techniques utilized by Viking naturally produce thin-wall copper tubing that is consistently superior in quality — quality that reflects itself in savings and dependability for the user. As a result, more and more manufacturers of air conditioning and refrigeration units and coils find that Viking continues to be the best source for thin-wall copper tubing.



**VIKING**  
**COPPER TUBE CO.**  
 CLEVELAND 10, OHIO  
 PRECISION DRAWN SEAMLESS COPPER TUBE

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# Engineered to

## RETAIN YOUR PRODUCT LEADERSHIP

### *Alco Designed* **CONTOUR POWER ASSEMBLY**

Increases power element life as much as 10 times over other designs by reducing extreme flexing of the diaphragm. Standard construction on all ALCO "T" Series and "HTL" Series.

### *Alco Designed* **RAPID RESPONSE REMOTE BULB AND WELL**

- Reduces danger of floodback
- Extra-quick closing response
- More efficient control over wider range of operating conditions
- Economical to install in package units
- Available on all Alco Gas Charged Valves when specified

*Alco Designed...*  
for easy capacity changes or cleaning without breaking connections or removing valve from line.  
Simply ... loosen 2 bolts ... lift out cage ... clean and replace.

## **ALCO** **T-SERIES**

### **\*THERMO EXPANSION VALVES**

• Refrigerants: FREON-12 from 1/2 ton to 50 tons, FREON-22 from 1 ton to 80 tons, CARRENE-7 from 3/4 ton to 60 tons, PROPANE from 1 ton to 88 tons • 2 BODY DESIGNS meet every requirement — STRAIGHT THRU CONNECTIONS or RIGHT ANGLE CONNECTIONS • WIDE VARIETY OF CONNECTIONS (Outlets to match distributor requirements • EXTERNAL or INTERNAL EQUALIZER • EXTERNAL or INTERNAL SUPERHEAT ADJUSTMENT • TIGHT SEATING ... STAINLESS STEEL STEM AND SEAT • CORROSION-RESISTANT MATERIALS • MOUNT IN ANY POSITION • NO SPECIAL WRENCHES or GUIDES REQUIRED FOR CLEANING AND SERVICING

Call your ALCO WHOLESALE—Write for Bulletin 171-56



- BUY SECURITY
- BUY QUALITY
- BUY ALCO

## **ALCO VALVE CO.**

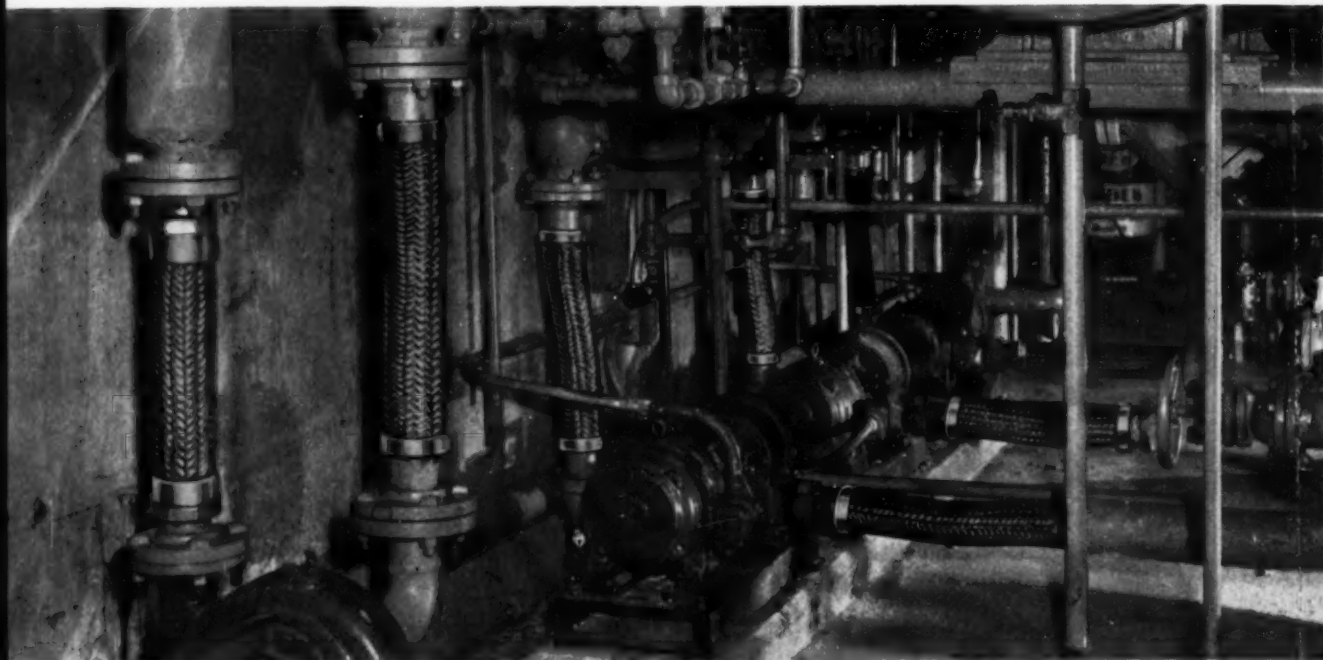
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Solenoid Valves • Suction Line Regulators • Flooded Evaporator Controls and Reversing Valves

Circle No. 3 on Reader Service Card

# APPLICATION HINTS:

Ways to simplify construction and cut costs with *Flexpipe*



Six Flexpipe connectors, 2½" I.D., 24" long, at the three boiler feed pumps. In the foreground are the Flexpipe connectors at the hot water pump feeding Weathermaster units throughout the Administration Building of the Illinois State Toll Highway Commission.

## Flexpipes made this heating and cooling system more compact, cut installation time



Artist's rendering of the Administration Building, Illinois Toll Highway Commission. Lankton, Ziegele, Terry & Associates: Architects and Construction Engineers.

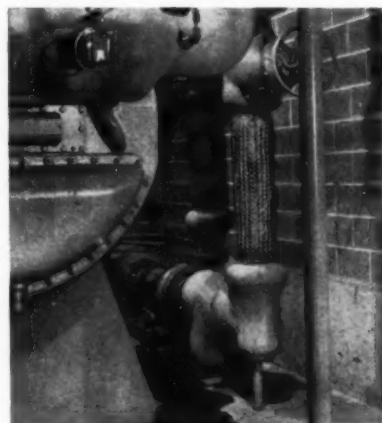
Heating and cooling systems can utilize all the advantages offered by Flexpipe connectors. Flexpipes take up movement caused by expansion and contraction in piping from wide variations in temperature. At the same time, they absorb vibration and dampen noise from pumps.

They make possible better utilization of space because they are easier to install in tight quarters and can

handle offset. Note in photo above how vertical Flexpipes from boiler feed pumps saved space by making possible easy connections to piping flush against wall. Conventional piping would require considerably more work room—plus the time and cost of installing elbows, couplings, short runs of pipe, etc.

Flexpipe's flexible core can be either bronze, galvanized steel or stainless steel—I.D.'s range from ¼" through 16".

**WHERE TO BUY:** Leading wholesaler distributors can provide you with information about Flexpipe in standard sizes. For the name and address of the distributor serving your area, or for more detailed information, write to: Anaconda Metal Hose Division, The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.



Two 8" I.D. Flexpipe connectors handle cooling water for refrigeration unit.

*Flexpipe*®  
an  
**ANACONDA**®  
product





**THE COVER:** You can save money for your customers and make money for yourself by selling and installing air recovery equipment. Properly applied, odor adsorbers purify conditioned air without the expense of introducing fresh air into the air-conditioning system.

## FEATURES

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Or do you believe strongly enough in one product line to really promote it?

### 41 WHAT'S IN A PROPOSAL?

This contractor answers with a new package aimed at more sales, less paperwork

### 42 FRESH AIR COSTS MONEY

... so selling air recovery equipment can save \$\$\$ for your customers

### 47 CLOSED CIRCUIT SYSTEM PAYS OFF FOR SUPERMARKET

21 water-cooled condensing units are connected to a single evaporative water cooler

### 48 MAKE EVERY SALESMAN AN EXECUTIVE

... that's the unusual operating theory one west coast distributor has found effective

### 49 IT PAYS TO WATCH YOUR TELEPHONE MANNERS

Don't chance losing a sale—or a customer—by saying the wrong thing in the wrong way

### 50 SUPERMARKET FOR TRADE-INS

This distributor goes looking for used refrigeration fixtures and makes them pay off

### 52 COOL THE HELP AS WELL AS THE CUSTOMERS

This Arizona restaurant does it by combining mechanical and evaporative cooling

### 54 HIRE THE RIGHT SALESMAN

Aptitude tests and personal analysis quizzes can help you. This distributor knows.

### 57 THE HEAT PUMP PRIMER — Part 3

The economics of the heat pump vary with the climate. Here are two examples.

### 61 KEEP THE OIL WHERE IT BELONGS (Conclusion)

Different refrigerating systems require different oil separator applications

### 62 ZERO STORAGE CUTS LENS REJECTS

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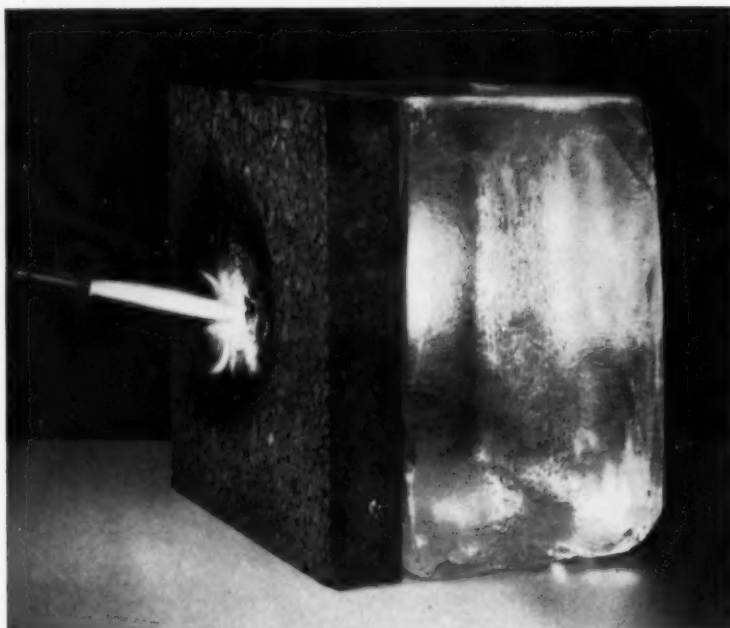
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## Why United's patented process results in corkboard of higher insulating value

Cork in its natural state is well known and highly regarded as an excellent insulating material. However, by an exclusive blocked-baked patented process that combines *both* external and internal heat in the moulding operation, United BB Corkboard is unsurpassed in insulating value.

Further, United Corkboard is 100% cork . . . with no filler added, and, its high strength in relation to light weight permits a sturdy self-supporting structure that is simple to erect. It's flexible too . . . fits accurately, works as easily as lumber and the natural resins released during processing further add to its excellent moisture resistant characteristics.

The next time you have a need for low temperature insulation investigate the unique combination of benefits only "patented process" United Corkboard can provide.

Write today for specifications and helpful installation data. No obligation.



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**ENGINEERING AND INSTALLATION SERVICE** — to meet your individual requirement . . . insure the most effective use and provide proper installation, United maintains fifteen branches throughout the country, staffed with experienced engineers and installation crews. For the one nearest you simply write our Kearny address.

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THE REFRIGERATION & AIR-CONDITIONING

# BIG NEWS FROM TENNEY



## THE HUSTLER IS HERE!

Powerful new line of refrigeration units for reach-ins, under-counter boxes, salad cases, beer coolers, wall dairy and beverage coolers, pastry boxes, and all comparable refrigeration installations.

**Union, N. J.** — Tenney's new line of Hustler unit coolers are here. Lightweight, rustproof — sleek, sturdy, silent. They can be quickly and easily installed, in all locations, with the slotted, adjustable hangers mounted on the unit. And the price is right.

### Outstanding features

The Hustler features controlled directional air flow, quiet and efficient fan motor arrangements. Connections located for use on either end with knockouts. Drain

fitting mounted for copper tube or hose.

### Looks match performance

Dressed in a handsome, all-aluminum patterned casing, the Hustler's rugged appearance matches its performance. Construction conforms to Tenney quality standards.

### Available to all

The Hustler is available to O.E.M.'s, and also to servicemen and contractors through refrigeration wholesalers. Write for Bulletin 119-59

Check these specs!

Model	CAPACITY	
	B.T.U./HOUR	
	10° T.D.	15° T.D.
H-13	1360	2040
H-17	1750	2625
H-23	2380	3570
H-30	3020	4530

Model	CIRCULATION		
	C.F.M.	FAN DIA.	Mtr. Watts
H-13	205	8"	46
H-17	280	8"	50
H-23	320	8"	50
H-30	400	(2) 8"	90



Engineers and Manufacturers  
of Refrigeration and  
Environmental Equipment

**Tenney**  
ENGINEERING, INC.

1090 Springfield Road, Union, N. J. • Plants: Union N. J. and Baltimore, Md.

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just about everywhere...



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**KOLD-DRAFT DIVISION... UNIFLOW MANUFACTURING CO., ERIE, PENNSYLVANIA**



# COPPER TUBE

*creates confidence in YOU!*



**"COPPER TUBE is in the 'specs' of all quality jobs"**  
*says the consulting engineer*

What other material has copper tube's *combination* of valuable properties? What other material resists corrosion so well...can be joined so easily...can take years of tough punishment...transfers heat so efficiently...is suitable for such a variety of refrigerants and lends itself to so many types of installation and fabrication processes? *There is none!*

In addition to all the performance features of copper tube...air conditioning and refrigeration men consistently find the overall cost of using copper tube

to be lower than less durable metals. This is because copper tube is so much easier to work with...in the plant or on the job.

If you have a choice...always make it copper. It builds confidence in the job you do, the product you sell and in you.

Look for "Made in U.S.A." on all copper tube. The manufacturer's brand name and this symbol also are used by many U.S. copper and brass mills to designate tube products that meet the exacting standards of American industry.

**Specify Copper Tube**



**for Air Conditioning  
and Refrigeration**



COPPER & BRASS RESEARCH ASSOCIATION • 420 LEXINGTON AVE., NEW YORK 17, N. Y.

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# FREE! GENETRON

## ... A GIFT FROM

**It's a  
Cylinder  
Carrier!**

Grab it anywhere!  
Carry ring is 22 inches around.



Extra strong! Ring and rods  
made of 1/2" rolled steel.

Built to last! All joints  
are arc welded.

Secure! Won't slip off. 3/8" neck ring  
screws all the way onto cylinder.

## Yours! During July or August with



### Interchangeable!

Ideal for service use.

Use on any 10 lb. or 25 lb. refrigerant cylinder.



**BIG VALUE!** Worth at least  
\$5 retail! Yours free when you buy  
"Genetrons" during July or Au-  
gust. Don't miss it.

General Chemical does it again! Brings you another special tool right in the busiest part of the season when you can use it most.

This time it's a heavy duty interchangeable carry-stand, specially made for 10 and 25 pound refrigerant cylinders. And it's yours free!—a gift from your wholesaler with the purchase of 22 pounds or more of Genetron refrigerants during July or August.

Remember—supply is limited. Only one to a customer. Be sure to get yours—see your wholesaler.



**GENERAL CHEMICAL DIVISION**  
40 Rector Street, New York 6, N. Y.

THE REFRIGERATION & AIR-CONDITIONING

# CARRY-STAND

**YOUR WHOLESALER**



**It's a Charging  
Stand!**

Swing wrench freely! Full 120°  
operating arc—seven inch  
span between uprights.

Easy to get at valve! Valve  
stem clears floor by over 3  
inches.

No skinned knuckles!  
Gives plenty of hand room  
—over 8 inches high.

**purchase of 22 lbs. or more of**

**genetron<sup>®</sup>** SUPER-DRY  
REFRIGERANTS!

**Supply Limited-See your wholesaler Early  
Only One to a Customer!**

**Bruce C. Doering** of Wolverine Tube, Div. of Calumet and Hecla, Inc., has been appointed sales representative in the Cleveland district. Doering will concentrate his efforts on the sale of the company's copper, copper alloy, and aluminum tube products. Formerly sales representative in Wolverine's state office, he will now service northern Ohio.



Maurey Mfg. Corp. announces the appointments of **Russell B. Malloy** to vice president in charge of sales, and **Joseph F. Taylor**, assistant vice president. Malloy has served as sales manager for all Maurey divisions for the past six years. Before joining the corporation in 1958, Taylor was director of V-belt sales for Goodyear Tire & Rubber Co.



Tribble

Several changes have been made in the Air-conditioning Dept. of General Electric. **Joseph S. Strecker** has been named regional manager with headquarters in Tyler, Tex. Three new assignments have been made on the staff of C. B. Ramsdell, marketing manager of central air-conditioners. **R. W. Tribble** was named manager of project and builder sales. **David T. Donovan** was appointed specialist-sales planning. **William G. Burke** was named specialist-publicity.

Two west coast representatives have been appointed by Viking Air Products. **William D. Bogh**

will cover southern California and Arizona. **L. M. Silva** will travel throughout northern California. The firm also named **Louis C. Roosevelt** district sales manager for Michigan, Indiana, and Ohio.

**W. L. McGrath**, president of Williamson Co., has been elected chairman of the board and **L. B. Murphy** has been elevated from executive vice president to president. Other newly elected officers of the firm are: **L. A. Knollman**, secretary and vice president, retail sales; **G. W. Denges**, vice president, research and develop-



McGrath



Murphy

ment; **G. Leytze**, vice president, jobber sales; **J. P. Field**, vice president, operations, Cincinnati plant; **J. H. Carroll**, vice president, purchasing; **J. H. Pearson**, vice president, operations, Madison, Ind., plant; **P. W. Jensen**, vice president, dealer sales; **W. H. Calahan**, vice president, Cooling Div.; and **E. W. Hamilton**, assistant secretary-treasurer.

**R. M. Probizanski** has joined the New Orleans sales staff of Ilg Electric Ventilating Co.

Five new assignments have been announced by Airtemp Div., Chrysler Corp. **Robert A. Beam** has been promoted to manager of the Miami, Fla., office. **Hascal Simmons** has been named operations specialist in Dayton. **Herbert K. Henry** has been named manager of marketing services.

Two new district managers also have been named. **J. J. McMahon**, formerly Philadelphia district boss, has been transferred to a similar job in Dayton. **L. W. McInteer** replaces McMahon in Philadelphia.

**A. James Hackl** has been named general manager of Worthington Corp.'s Air-conditioning & Refrigeration Div. Hackl will headquarter in the division's main office at the Ampere Works in East Orange, N. J. Prior to joining Worthington, he was associated with Trane Co. as general sales manager for the company's line of packaged air-conditioning products.

**David W. Jasper** has been elected vice president of Carrier Corp. He has also been designated general counsel of the corporation. Since 1953 he has served as head of the legal department.

**J. T. Conlon** has been elected president of Gustin-Bacon Mfg. Co., succeeding **J. D. Simmons**, who will continue with the company as a director and consultant. Conlon joined Gustin-Bacon in 1937, in the company's sales department. In April of 1958, he was elected executive vice president of the company.

**Melton Koch** has been named regional sales manager for Texas by Bally Case and Cooler Co. Koch will headquarter in Houston.

Appointment of **George H. Wessler** as manager of the newly formed Sacramento district has been announced by the Unitary Equipment Div. of Carrier Corp.



# WANTED:

## AGGRESSIVE DISTRIBUTORS WHO CAN'T AFFORD TO WAIT!

# *Crystal Tips*

Distributors are  
selling 63% more ice makers  
than ever before . . . can you  
afford not to find out why?

Models illustrated reading  
clockwise from top: B-300-B,  
B-300-B, B-200-B. Capacities  
up to 1/4 ton per day.



The fastest selling ice makers on the market today are Crystal Tips 2-in-1 Ice Makers. Why? Because automatic ice making is here and Crystal Tips has the features customers want. Now is the time to cash in on this vast market!

From the standpoint of design, engineering and attractive prices with high distributor profits, no other ice maker on the market can match Crystal Tips.

We want aggressive dealers now. If you are not satisfied with the profits you are getting from the line you are now handling or if you are not handling a line of ice makers and want more facts about a Crystal Tips distributorship, write us today.

*First Name in Automatic Ice Makers*

**AMERICAN**  
AUTOMATIC ICE MACHINE COMPANY  
1974 Fourth Street N. W. Faribault, Minnesota

A Division of McQuay, Inc.

IT PAYS TO BE A CRYSTAL TIPS DISTRIBUTOR



Wessler joined Carrier in 1952 and has been working with distributors and dealers first in the Dallas, Tex., area and, more recently, in Los Angeles and the northwest.

**Robinson F. Edgar** has been appointed marketing manager of the Industrial Hose Div. at Flexonics Corp. Edgar will be located at division headquarters in Rock Falls, Ill. As division marketing manager he will be in charge of the national marketing programs of the company's industrial hose products.



Bohn Aluminum & Brass Corp.'s Betz Div. has in Danville, Illinois, announced the promotion of two product engineers. **Herbert S. Lindahl** has been promoted to chief product engineer—Refrigeration; and **Gordon Kayser** has been made chief product engineer—heating and air-conditioning.

**H. J. Rust, Jr.** has been appointed manager of the Acme Industries, Inc. new branch office in San Francisco, Calif. He will be assisted by **A. L. Mudica**, sales engineer. The office will supervise Acme sales engineers in the states of Washington, Oregon, Colorado, Nevada, Arizona, Utah, Idaho, New Mexico, Montana, and California.



Rust

**Marcel R. (Dick) Martin** has joined the engineering department of Air-Conditioning and Refrigeration Institute as assistant engineer. Martin will assist with the engineering and standards committees of ARI product-sections on standards, certification programs, as well as in the preparation of tech-

nical booklets and releases, and liaison with technical societies and trade associations.

**Fred J. Hagy, Jr.**, manager of the Waterloo, Iowa, branch of A. Y. McDonald Mfg. Co., for the past eleven years, has been promoted to merchandising manager. Hagy will be responsible for the supervision of all branch operations, and will act as liaison between the branches and the home office, at Dubuque.

New public relations director for Bryant Mfg. Co. is **Howard J. Berkel**. The firm also announced the appointment of **Walter R. Leander** as product manager for



Berkel



Leander

gas furnaces. Berkel also will continue to head the company's personnel division. Leander has spent the last 10 years in sales management jobs with Stewart Warner Corporation.

Koch Refrigerators, Inc., announces the election of **Milford J. Houghton** as vice president in charge of manufacturing. Houghton joined Koch in 1949 as superintendent of the company's sheet metal plant, and was promoted to manager of manufacturing in 1955.

**E. G. Haight** has been named Kelvinator's contract sales manager, succeeding Charles H. Herrlich, who retired. Haight joined Kelvinator in 1945.

Warren Co., Inc., has announced the appointment of two district managers: **Clarence Potts**, to serve the mid-south territory, head-

quartered in Atlanta, Ga.; and **Irving Hechtman**, to cover the midwestern district, headquartered in Chicago, Ill.

**Merle J. Holst** has been appointed sales manager for refrigeration products by Wall Tube & Metal Products Co. Holst has been active in many phases of the firm's management for the past 10 years. His office will be in Plymouth, Michigan.

**Daniel F. Pillow** has been named sales and service Manager, "Kold Hold" Div., Tranter Mfg., Inc. Pillow joined Tranter about six years ago as a sales engineer. He has been service manager for the company since 1957.

**George R. Allen**, vice president, was elected to the board of directors of Superior Valve & Fittings Co. Allen joined Superior in 1949 as general sales manager and was named vice president in 1950.

Drayer-Hanson has appointed **Howard Crusey** sales engineer in charge of sales agent groups in certain territories. In the Pacific northwest, the states of Washington, Oregon, and Utah will be under Crusey; in the mid-west, Kansas, Minnesota, and Nebraska; also, Colorado, Oklahoma, Arkansas, and Florida, Crusey returns to the firm after having left in 1949.



**John M. Hughes** has joined Fedders Corp. as a central residential sales engineer. Before joining the firm, Hughes was sales manager of heating and air-conditioning for Hollander & Co., Fedders St. Louis distributor.

**Robert F. Elliott** has been appointed sales representative for na-



Model 410  TRAP-DRI

# BALANCED BLEND

of finest desiccants

**Old problem:** moisture + refrigerant = corrosive acids

**New solution:** PA 400 + molecular sieve =

100% moisture adsorption

100% acid protection

It's CC's exclusive balanced blend. Eliminate moisture completely and you eliminate corrosive acids — a major source of refrigeration trouble. New, improved Trap-Dri passes this "acid test" with its perfect proportion of PA 400 silica gel and molecular sieve desiccants. Water and acid are adsorbed physically with no release of any substance to refrigerant circuit. Trap-Dri is a filter too! Exclusive depth filtration removes all foreign material with no appreciable pressure drop.

This 2-way protection adds years of profitable, trouble-free performance . . . greater guarantee of safety to any refrigeration system. Trap-Dri is available with solder or flare type connections, 1/3 to 7 1/2 ton capacities. Write today for full facts.



**ECONOMY MODEL 414 JET-DRI (DRIER)** removes and prevents formation of harmful acids that corrode iron, copper, brass and aluminum. Constructed with brass fittings (1/4" S.A.E. male flare connections). Flow in either direction.



**MODEL 408 TRAP-IT (FILTER)** has many times the filtering and absorbing area of ordinary filter. Three sizes: 1/4" or 3/8" fittings on the regular and large sizes and 1/2" or 3/4" on the extra large. S.A.E. male flare connections.

**RIGHT COMBINATION** of PA 400 and molecular sieve desiccants completely adsorbs moisture at relatively high temperatures. Besides removing acid-forming moisture, blend also eliminates acids present in the system. High reserve capacity, low pressure drop, non-corrosive and non-dusting characteristics are qualities unmatched by any other desiccants.

**DEPTH FILTRATION** heads off all dirt and desiccant. Exclusive cotton bobbin provides depth filtration (not surface) which removes particles of sediment as small as 5 microns. Special diamond shape filter winding permits high capacity filtration with no increase in pressure drop.

**PLASTIC CAPS** are hermetically "factory-sealed" to keep out all moisture and dirt before installation. Cap locks tightly against both the end opening of the drier and the outer surface of the connections.



*Creative Controls for Industry*

## CONTROLS COMPANY OF AMERICA

2418 N. 32nd St. • Milwaukee 10, Wisconsin  
COOKSVILLE, Ontario • Postfach 313, ZUG, Switzerland

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HAC-47-59

tional accounts by Taco Heaters, Inc. Elliott previously was sales manager for General Blower Co.

Payne Co. has appointed **Joseph H. Hoff** factory district manager.

Two new assignments have been made at Viking Air Products Div., National-U.S. Radiator Corp. **John Thibo** has been named ad-

vertising manager. **John M. Furin** has been appointed to the newly created job of supervisor of sales. Thibo will correlate Viking's program with that of the parent company. Furin will direct all sales to residential furnace and air-conditioning manufacturers.

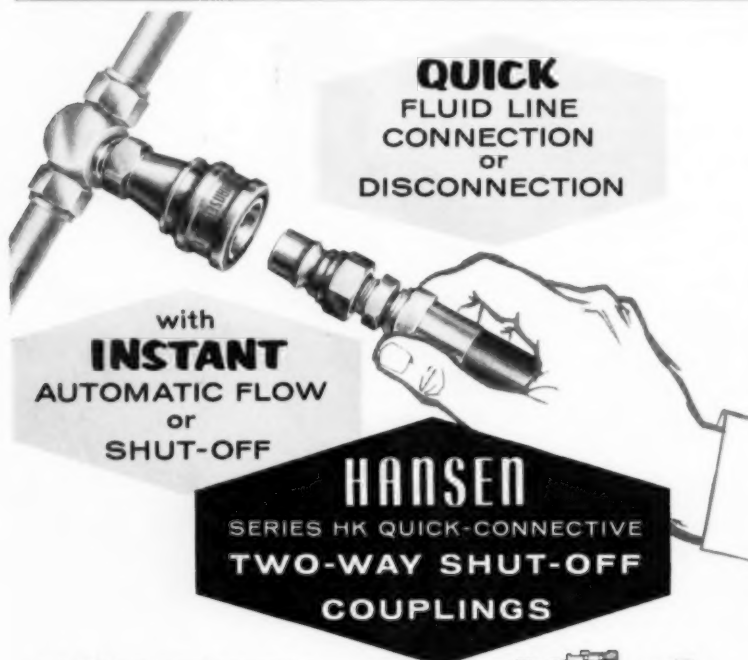
Trane Co. has appointed **William C. Lindsay** sales manager, Package Equipment Dept. Lindsay joined the company in 1958.

**Robert W. Carvell** has been advanced to the position of sales promotion and advertising manager of Henry Valve Co. For the past two years he has been serving as sales supervisor of the company's industrial activities. In his new job he will, to a large degree, direct the promotional efforts of Henry's field organization, with special emphasis on wholesaler activities.

Appointment of three Chrysler Corp. Airtemp Div. departmental managers has been announced. The three, all named general managers, are: **George H. Childers**, room air-conditioner department; **Sydney Anderson Jr.**, packaged equipment department; and **Robert E. Stotz**, applied machinery and systems department.

**Bernard Willach** has been elected vice president for engineering by Marsh Instrument Co. Willach, who received his engineering degree from Cologne University, has devoted a total of 33 years to the design of pressure gauges and similar instruments. During the past 17 years he has served as chief engineer of the Marsh organization.

**C. N. Yerby** has been promoted to the position of regional sales supervisor for the refrigeration department of Virginia Smelting Co. From the company's West Norfolk, Va., headquarters he will direct a region consisting of four sales territories in the southeast and southwest. For the



**QUICK FLUID LINE CONNECTION or DISCONNECTION**

with **INSTANT AUTOMATIC FLOW or SHUT-OFF**

**HANSEN**  
SERIES HK QUICK-CONNECTIVE  
**TWO-WAY SHUT-OFF COUPLINGS**

Hydraulic and pneumatic lines are quickly and easily connected with Hansen Two-Way Shut-Off Couplings. No tools required.

When Coupling is disconnected, valves contact valve seats in both Socket and Plug to provide instant and positive seal of fluid in both ends of line. Coupling does not depend upon line pressure to seal either end of line.

Six sizes are available, with female pipe thread connections from  $\frac{1}{8}$ " to 1" respectively. Furnished either in steel or brass.

Representatives in Principal Cities  
... See Yellow Pages

Instantly shuts off both sides of line... prevents loss of liquid, gas or pressure.

Quick-Connective Fluid Line Couplings for

COMPRESSED AIR • OIL  
GREASE • HYDRAULIC FLUIDS  
WATER • VACUUM • STEAM  
OXYGEN • ACETYLENE  
REFRIGERANTS • GASOLINE  
COOLANTS • LP-GAS



Write for the Hansen Catalog  
Here is an always ready reference when you want information on couplings in a hurry. Lists complete range of sizes and types of Hansen One-Way Shut-Off, Two-Way Shut-Off, and Straight-Through Couplings.

SINCE 1915  QUICK-CONNECTIVE FLUID LINE COUPLINGS

**THE HANSEN MANUFACTURING COMPANY**

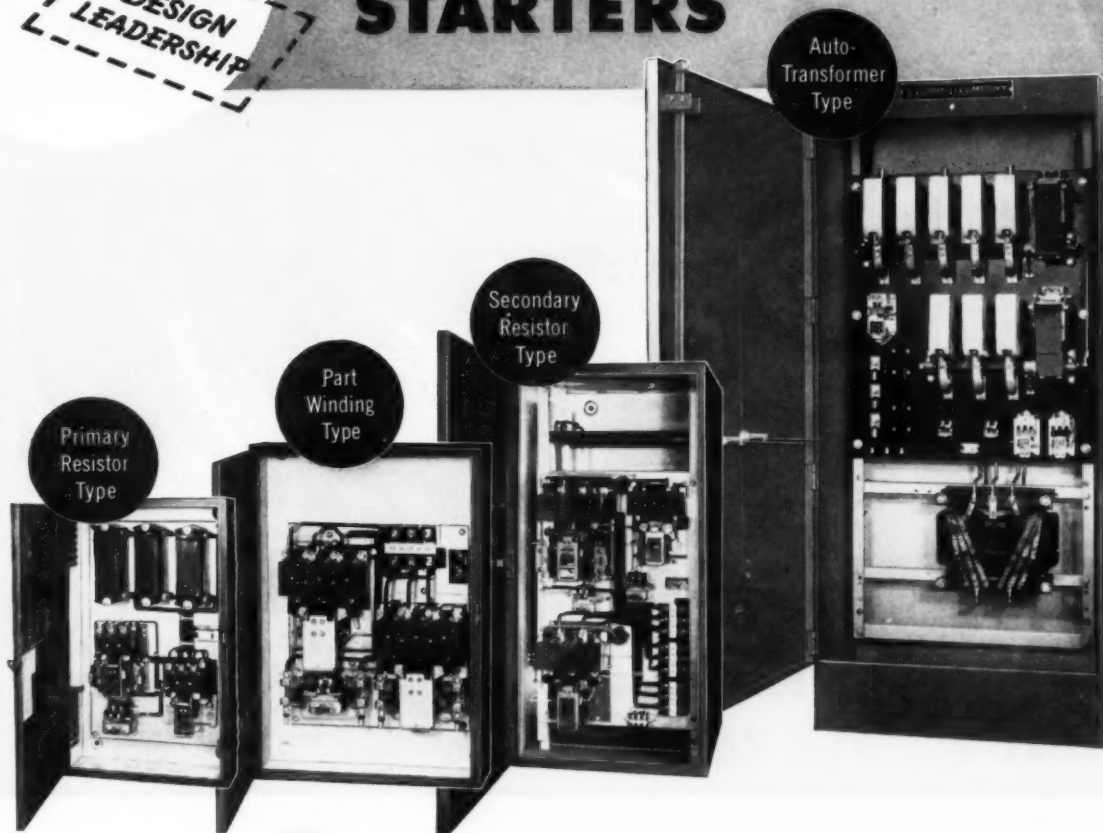
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Circle No. 12 on Reader Service Card





# **SQUARE D** *Reduced Voltage* **STARTERS**



One of these **4** types will meet your requirements... *best*

Is minimum motor current inrush your primary consideration?

Is it reduced starting torque? Or maximum smoothness in acceleration?

Is cost an important factor?

With these four types Square D can meet any reduced voltage starter requirement—exactly.

*Write* for Reduced Voltage Starter Bulletins. They give complete details.  
Address Square D Company, 4041 N. Richards Street, Milwaukee 12, Wisconsin.



**NOW... EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE!**

## **SQUARE D COMPANY**

past two years he has been credit manager and assistant secretary-treasurer of the company.

Appointment of **Richard K. Peck, Jr.** as sales representative for McQuay heating and air-conditioning equipment in the Tampa, Fla., area is announced.

**Edward Lindberg, Jr.**, has been appointed to the new position

of field sales manager of Redmond Co., Inc. The new position was created so the company could serve its customers better.

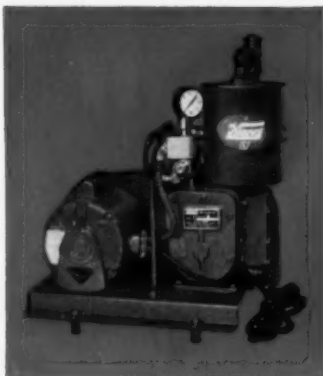
**Roy A. Bredholt** has been appointed director of field services for the national Better Heating-Cooling Council. Bredholt will direct distribution of promotional materials and services and coordinate the activities of the BHC local Council organization, acting

as liaison between the national and local Councils.

**Robert G. Metzger**, has been named field engineer in the western Michigan part of the Detroit district for Metals & Controls Corp.'s Spencer Div.

**George Faux** has been named to represent La Crosse Cooler Co. and will contact the bottling trade in Pennsylvania, New York, New Jersey, and Delaware.

## A Cleaner, Drier System, AND Quick, Profitable Service . . .



## **Kinney**® FEATURES TWO NEW PORTABLE HIGH VACUUM PUMPS

KINNEY KC-3R and KC-8R Portable High Vacuum Pumps are proving important money-makers for servicing Freon Refrigeration and Air Conditioning Systems up to 10 ton size. These gas-ballasted KINNEY Pumps leak test, evacuate and dehydrate the system quickly. They're built for rugged day-in-and-day-out service and, being portable, are always ready... in the shop or out on the job. Get the advantages of these KINNEY Pumps for your service operations — write for prices today.

*Write*  
for FREE Catalog Bulletin  
4570.1



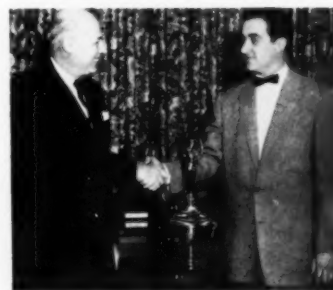
**KINNEY MFG. DIVISION**  
**THE NEW YORK AIR BRAKE COMPANY**

3618 WASHINGTON STREET • BOSTON 30 • MASS

Please send me, without obligation, Bulletin 4570.1 with full information on KC-3R and KC-8R Pumps.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
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City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Circle No. 14 on Reader Service Card



**HE'S BUILDERS' CHOICE.** Elmore T. Scheck, left, Wisconsin sales manager of Mueller Climatrol Div. of Worthington Corp., was chosen by the Metropolitan Builders Association of Milwaukee as its outstanding associate member for 1958. Harold P. Mueller Jr., Mueller Climatrol executive vice president, congratulates Scheck.

American Instrument Co., announces a new sales representative, **Ernest Sturm**, with offices at 8768 Del Vista Dr., St. Louis, Mo. The sales territory will include all of Missouri and southern Illinois.

### COOLING CONTRACT LET

A contract to air-condition the Manger Hamilton Hotel in Washington, D. C., has been awarded to Hudik-Ross, Inc., mechanical contractor. The 320-room hotel will be cooled by means of a chilled-water, fan-coil system using reciprocating compressors. A total of 250 tons of air-conditioning will be used.

**YOUR WHOLESALE  
CAN SERVE YOU — LET HIM!**

## News IN REVIEW...

S. & R. Food Service, Inc. will be the name of the new firm being formed by merger of S. & R. Soda Fountain Mfg. Co. and Central Restaurant Equipment Co., both of New York City. Bernard Roberts, president of S. & R., will head the combined company . . . . Turner Brass Works has shortened its name to Turner Corp. in line with the product diversification and marketing program launched a few years ago.

Ilg Electric Ventilating Co. has purchased General Blower Co. and will operate this firm's Morton Grove, Ill. plant as General Blower Div. of Ilg. No change in personnel or products is contemplated . . . . Rigidbilt Inc. is moving its entire plant and office facilities to 9240 Belmont Ave., Franklin Park, Ill., a Chicago suburb. Increased manufacturing capacity will result.

Sales and net profits of McQuay, Inc., reached an all-time high for the first quarter of 1959. Net sales hit \$3,670,267; net profit was \$120,446 . . . Acme Industries, Inc., has opened a direct factory sales office in San Francisco to supervise activities in a 10-state area consisting of Washington, Oregon, Colorado, Nevada, Arizona, Utah, Idaho, New Mexico, Montana, and California . . . . Dayton Rubber Co. has formed a new company, Dayton Industrial Products Co., to handle the firm's line of industrial and automotive products. The new division will be headquartered in the Melrose Park area of Chicago.

Oster Mfg. Co. has purchased the patents on the power driven copper fitting and tube cleaning machine introduced to the trade last year by Stockmeister & Prins, and will manufacture this unit in its Wickliffe, Ohio, plant. Oster claims to have made a number of improvements in the design and operation of this machine, and to have lowered the price through quantity production.

Standard Steel Corp. has acquired from Carrier Corp. the assests of Cambridge Co., Lowell, Mass. Announced aim is to integrate cryogenics know-how of Cambridge with manufacturing techniques of Standard. The operation will continue in Lowell . . . Stockholders of Warren Webster & Co. have approved sale of the business to Management & Development Corp., Baltimore, Md. Present Warren Webster management will retain a substantial financial interest. The Warren Webster name will be kept; few operating or marketing changes are planned.

Outstanding stock of Clover Refrigerator Co., Inc. has been purchased by Albert Fogel, president of Howard Refrigerator Co., Inc. All manufacturing and merchandising of Clover equipment for industrial, commercial, and specialty refrigeration is being consolidated with the Howard organization.

MORE MANUFACTURERS GUN FOR FOREIGN BUSINESS: Recold de Mexico, S.A., has been formed to manufacture the complete Recold line of refrigeration and air-conditioning equipment in Mexico for the Latin American market. The 20,000-sq.ft. plant in Durango is said to be the first operation of its kind south of the border . . . Opening up new foreign markets for fiber

## News IN REVIEW

glass products is one of the specific responsibilities of Clinton F. Hegg, new assistant to the vice president for sales of Johns-Manville Corp. . . . Controls Co. of America has formed a new subsidiary, Controls A.G., in Zug, Switzerland. It will be headquarters for all of the company's overseas operations . . . . Remington Air Conditioning (Canada) Ltd. has been organized to handle exclusive Canadian distribution of Remington Corp.'s incremental system of air-conditioning for multi-room buildings. Offices are in Toronto and Montreal . . . . Ansul International Corp., S.A., has begun handling distribution of Ansul Chemical Co. products to all countries outside the U.S. Operating this new subsidiary are L.T. Plouff, vice president and general manager, and H. C. Higley, vice president, sales manager, and secretary.

Included among delegates to the 10th International Congress of the International Institute of Refrigeration in Copenhagen, Denmark are John E. Dube, president, Alco Valve Co., and B. H. Jennings, director, research laboratory, American Society of Heating, Refrigerating and Air-Conditioning Engineers.

Distributor Advisory Council has been organized by Perfection Industries to give grass roots advice to the Cleveland manufacturer. Distributors will meet from time to time with Perfection's sales department to discuss products, programs, and policies . . . New insulations have been developed by the Plastics Div. of Nopco Chemical Co., in the area of "Freon" expanded urethane foams in the low temperature insulation field. A new Lock-foam polymer is said to exhibit only  $\frac{1}{4}$  the thermal conductivity (K factor) of the polymers used in existing foams.

A new \$10 million plant has been completed in New Milford, Conn., by the mill products division of Scovill Mfg. Co. to produce copper tube and pipe for plumbing, heating, and air-conditioning applications . . . . Hagan Chemicals & Controls, Inc., will build a new quarter-million-dollar addition to its existing research facilities at the firm's headquarters near Pittsburgh. Completion is scheduled for early fall.

Studies to test the feasibility of thermoelectric heating and cooling will be undertaken by Carrier Corp. under a contract from the U.S. Navy. The 18-month program will be devoted to preliminary design and analysis. Success will lead to large scale development of thermoelectric heat pumps, says J. F. Downie Smith, Carrier research and development vice president.

Torit Mfg. Co. will consolidate operations of three separate plants in a new building being completed in St. Paul, Minn. Manufacturing and engineering space will be increased about 25% . . . . Wall Tube & Metal Products Co. has acquired and modernized a second factory building in Newport, Tenn., bringing total manufacturing area to 141,000 sq.ft.



# HUSKY

This certifies  
that NIBCO Husky  
Welding Fittings are  
made from materials which  
conform to A.S.T.M.  
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Husky fittings conform in all respects to the following high standards set forth by the American Society For Testing Materials: A 234-58T.

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| ✓ MANUFACTURE          | ✓ HARDNESS               |
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| ✓ HEAT TREATMENT       | ✓ MARKING                |
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tees



reducing tees



90° elbows



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**HUSKY**  
WELDING FITTINGS



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Please send your new Husky Catalog H-1 without cost or obligation.

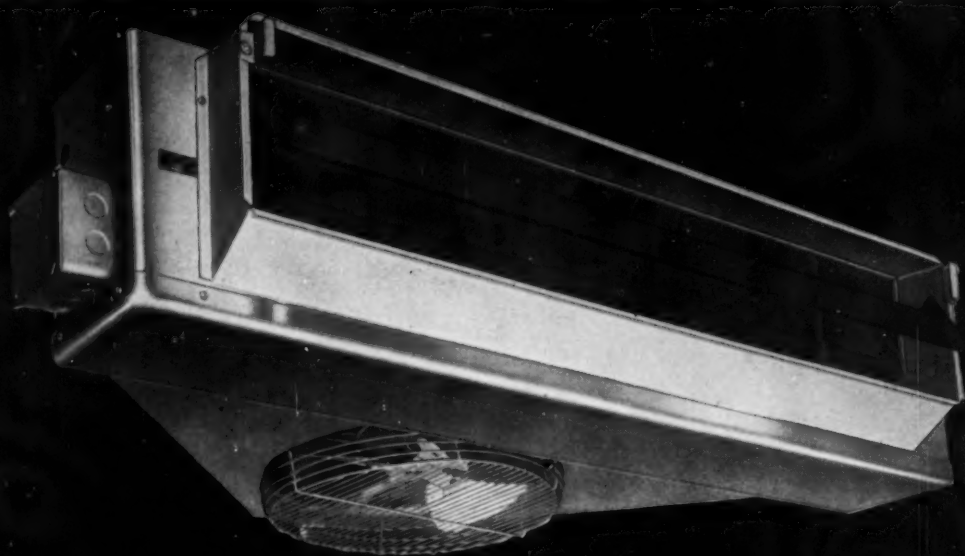
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firm \_\_\_\_\_

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city, state \_\_\_\_\_

☐ Please also send address of nearest supplier.



# deltric

Automatic electric defrost unit for the 28" room or light frost application.

*Exclusive Thermovane* holds heat at coils  
assuring fast, positive defrost



*... selected by Mr. Contractor* because  
of the economy and ease of installation and the  
simplicity of service.

*... selected by Mr. Butcher* because  
it keeps meat firm and easy to cut, keeps defrost  
heat from the meat and requires less box space.

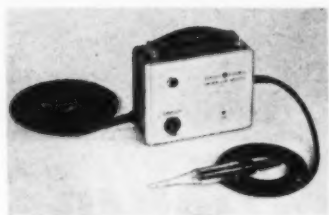
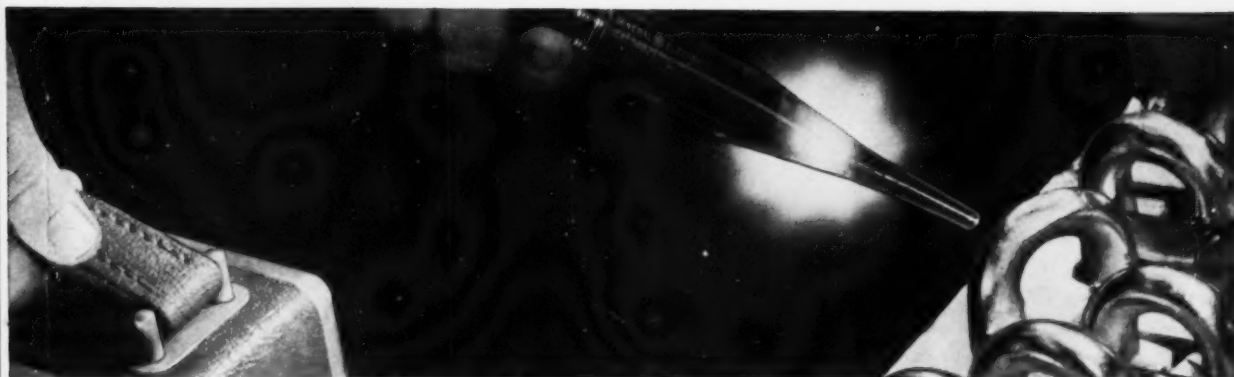


## RECOLD

CORPORATION

7250 East Slauson Avenue  
Los Angeles 22, California

## locates leaks in a flash . . .



**This new General Electric Type H-6 leak detector** flashes a probe light instantly when the tip pinpoints a leak. Air-conditioning and refrigeration leaks (even as small as  $\frac{1}{2}$  ounce per year) are detected quickly and positively in a flash! **Eliminates costly guess work.** As soon as the tip of the probe finds a broken seam or leaky joint, there's a reliable signal right in your hand! The H-6 has an automatic balance circuit . . . you can locate leaks even when the atmosphere is contaminated with refrigerants up to 100 ppm. Flip the switch and start probing in only 60 seconds. This sensitive unit **responds to leaks quickly**, recovers in a second. It's compact, lightweight, rugged, portable . . . and attractively designed. Always enjoy fast, positive, sensitive detection—at low cost—with the Type H-6. Or, for other special applications, select from General Electric's complete line of portable and stationary halogen units for pressure or vacuum leak testing. Get the full story today! Just contact your local air conditioning and refrigeration wholesaler, or write direct to Sect. 595-203, General Electric Co., Schenectady 5, N. Y.

**Other Instrument Department Products for Industry**—Hook-on voltmeters, electric recorders and controllers, pyrometers, timing devices, speed and color measurement, laboratory test instruments.

*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**

Circle No. 17 on Reader Service Card

# NEW DUNHAM-BUSH 'CHC'



## COOLING HEATING CONDITIONER



Where there's a need, there's a Dunham-Bush product!

The new "CHC" Cooling-Heating Conditioner continues the Dunham-Bush pattern of product progress providing "one-source-one responsibility" for all your air conditioning, heating, refrigeration and heat transfer needs.

"CHC" is a compact fan coil unit for mounting between-the-studs of a wall structure, designed to meet the smaller space and capacity requirements of motels, hotels, apartments and residences. Together with Heat-X Package Water Chillers, Dunham-Bush Pumps, and Water Savers, all the necessary equipment to meet complete specifications are provided.

Dunham-Bush "CHC" units are available in two basic sizes—Model CHC-150 and CHC-300. The standard unit is basically designed for free standing use readily adaptable for semi-recessed applications. Each standard unit can be wall mounted, fully exposed or semi-recessed, as required for "off the floor" installations. Matching trim pieces are available for finishing purposes on semi-recessed applications.

Other available features include fresh air wall boxes to meet ventilation requirements calling for the introduction of fresh air up to 20% of the rated CFM; rear discharge sections and grilles to permit discharge of up to 50% of the rated CFM to adjacent rooms where the standard unit is installed on a common interior partition.

Keep up-to-date on the latest! Write for complete "CHC" specifications or call your Dunham-Bush sales engineer.

**DUNHAM-BUSH** equipment for COMPLETE SPECIFICATIONS

### Dunham-Bush, Inc.

WEST HARTFORD 10 • CONNECTICUT • U. S. A.

## DUNHAM-BUSH

AIR CONDITIONING • REFRIGERATION • HEATING • HEAT TRANSFER

WEST HARTFORD, CONNECTICUT • MICHIGAN CITY, INDIANA  
MARSHALLTOWN, IOWA • RIVERSIDE, CALIFORNIA  
BURLINGTON, MASSACHUSETTS

<p>heat-x</p> <p>WEST HARTFORD, CT</p> <p>SCHWABER</p>	<p>WEST HARTFORD, CT</p> <p>THE BRUNNEN CO.</p> <p>WEST HARTFORD, CT</p>	<p>DUNHAM-BUSH</p> <p>DUNHAM-BUSH (CANADA) LTD.</p> <p>TORONTO, CANADA</p>
--	--	--

PORTSMOUTH, ENGLAND • PORT HARBOR, HONG KONG

Circle No. 18 on Reader Service Card

THE REFRIGERATION & AIR-CONDITIONING





Don't omit  
the essential  
ingredient  
in selling...

Most prospects need their cash reserves and usual lines of credit for current operation. Make it easier for them to sign on the dotted line by including financing arrangements. COMMERCIAL CREDIT's Refrigeration Plan has become an essential part of the proposal of so many refrigeration and air conditioning companies.

COMMERCIAL CREDIT's Refrigeration Plan is tested by time and experience in handling the financing for thousands of commercial installations. Let us show you how COMMERCIAL CREDIT's experience and know-how can save you time and money... and help you close sales with less delay. Telephone the nearest COMMERCIAL CREDIT office or write COMMERCIAL CREDIT CORPORATION, 300 St. Paul Place, Baltimore 2, Md.

**COMPLETE YOUR PROPOSAL  
WITH FINANCING ON THE**

## **COMMERCIAL CREDIT PLAN**



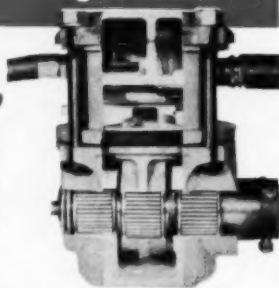
ANOTHER SERVICE OFFERED BY AFFILIATES OF  
**COMMERCIAL CREDIT CORPORATION**

Circle No. 19 on Reader Service Card

## ACE, the quality line for air conditioning and refrigeration

### MODEL 77 Diaphragm Descaling Acid Pump

Descaling compounds can't affect this pump! All parts in contact with compounds are completely acid-resistant. Can be supplied as portable unit with pump and motor mounted on sturdy base and with convenient carrying handles.



### Plus a complete line of centrifugal pumps

... sized to fit your needs. 1/4 H.P. thru 10 H.P. Easy to install and compactly built. Advanced features include exclusive baked-on lifetime finish to enhance appearance and resist corrosion, John Crane mechanical seal, and all-bronze one-piece impellers. Continuous duty motor, 1750 rpm or 3450 rpm.

Orders shipped the SAME DAY received



## Are you getting the lion's share?



There's a huge portion of meaty information between the covers of each issue of *THE REFRIGERATION & AIR-CONDITIONING BUSINESS*. Make sure you've gotten the most out of this one before you pass it along. Leaf through it again, particularly noticing things like *New Products* and *Useful Literature* (see listings on Contents page). If you need details on any of them, the Reader Service Card will bring them.

## Letters

### Wholesaler Says Amen to Business Training Proposal

EDITOR:

I certainly want to congratulate you on the fine article on "How To Prevent 9 out of 10 Business Failures among Contractor-Dealers" that appeared in the May issue.

As a wholesaler we have a vital interest in dealers making profits, and to both of your questions [Are you interested in learning more about how to run your business — profitably?; Would you be interested in seeing a cooperative industry-wide program of business management training developed and presented?] the answer is "Yes".

I, too, have seen some of the dealer management schools which were handled by college professors on a very high technical nature, leaving the dealer bewildered by such terms as depreciation, amortization, capital return on investment, etc.

In speaking to dealers who attended these meetings held by manufacturers, they all report that there was too much sales and engineering thrown into the meetings, and not enough business management.

If the Institute [ARI] does go ahead on this program I am sure they will find many dealers in the St. Louis area who are interested.

W. L. DULLE  
vice president  
E. E. Souther Iron Co.  
St. Louis, Mo.

*This is just one of many letters from contractors, dealers, distributors, and wholesalers enthusiastically supporting the proposal we made in the article mentioned. More information on this subject will be published as new developments occur.*

\* \* \*

### Manual Author Solves Reader's Freezing Problem

EDITOR:

I have read the article by Hugo C. Smith in your February issue titled "Design Coolers and Freezers for Heavy Product Loads".

I am inclined to disagree with some of his calculations, and would very much like some clarifications on some figures.

In the paragraph for freezers the

*Continued on page 99*

Emil Gabriel says: \*

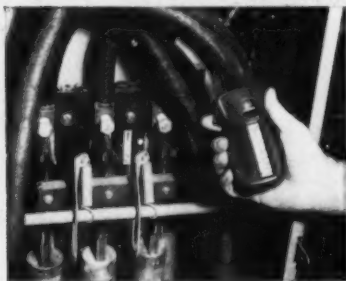
## "WE CUT MOTOR-TEST TIME WITH THE AMPROBE RS-3!"

"Ours is a very busy motor-repair shop. With the amount of work we handle, any method of cutting corners is appreciated. One of the best ways of cutting test time we've found is to make sure that *every* man in the shop has an AMPROBE RS-3 snap-around volt-ammeter-ohmmeter. We've been using the RS-3 for some time now, and it saves us time, effort and trouble on every motor job. We wouldn't be without the RS-3!"

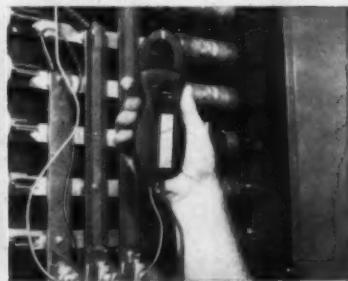
Not only do Emil and his men at Queens Electric use the AMPROBE RS-3 but they recommend it to their customers for plant maintenance. Yes, thousands of electricians, servicemen and plant maintenance men everywhere have discovered that the all-purpose AMPROBE RS-3 handles 99% of all their test needs...accurately and safely. It meets every commercial voltage requirement on three voltage scales...0-150/300/600 VAC; gives accurate current readings from 0 to 300 amps on five current ranges; takes resistance readings as low as 0.5 ohms. *Cut motor-troubleshooting time — mail coupon today!*



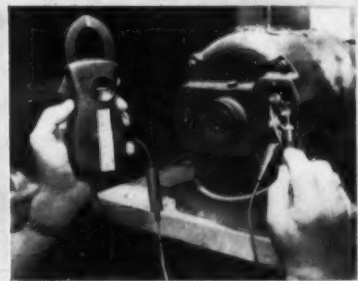
\*Veteran shop foreman, Queens Electric Motors, Long Island City, N. Y.



Check for low-voltage conditions



Check unmarked terminals on motors



Check phase balance on new installations

## AMPROBE RS-3

Pyramid Instrument Corp. Dept. T-2,  
630 Merrick Road, Lynbrook, L. I., N. Y.

I'd like to know more about how Emil and his men use the AMPROBE RS-3. Please send me detailed story.

Name

Address

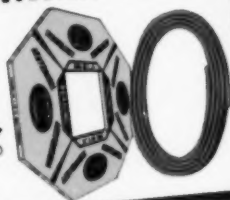
City  Zone  State

Circle No. 21 on Reader Service Card

# IN TUBING, Nothing Beats Copper! IN COPPER TUBING, Nothing Beats READING!

For **COPPER WATER TUBE**

Specify  
**READING**  
"LEKTRONEAL"



For **COPPER REFRIGERATION TUBE**

Specify  
**READING**  
"LEKTROSEAL"



50 ft. coil in protective carton.

Soft tempered easy forming—dehydrated

Crimped ends seal out moisture & dirt

Also Specify **READING**

- COMMERCIAL COPPER TUBE
- for • RED BRASS & COPPER PIPE
- THREADLESS COPPER PIPE

**READING**  
COPPER BRASS  
TUBE

And  
RED BRASS  
PIPE

Sold  
Through  
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Only



MADE IN U.S.A.  
TO THE STANDARDS  
OF AMERICAN INDUSTRY

For **FINNED**  
**COPPER TUBE**  
Specify **READI-FIN®**

READI-FIN  
TYPE W/H

A line of heat transfer tubing made by Read-Fin Mfg. Co., Inc. (a subsidiary of Reading Tube Corp., at Reading, Pa.). The extended surface is extruded from the tube wall, thus eliminating the possibility of fin failures resulting from thermal shock, corrosion and erosion. This "one-piece" (integral) construction provides maximum heat transfer efficiency, ruggedness, easy fabrication and freedom from fouling. It's available in Water Tube types with finned or plain ends and in Condenser Tube types with finned, plain or stripped ends.



READI-FIN  
TYPE S/T

For **PRECISION COPPER TUBE**  
Specify **MACKENZIE WALTON**

(A Subsidiary of READING TUBE CORP.)  
PAWTUCKET, R. I.



CAPILLARY



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THIN WALL



BRAIDED

- Famous for Accurate and Fine Finish Tubing
- Quality Controlled from Start to Finish

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CHICAGO, ILL.

305 W. 31st St.

DENVER, COLO.

2845 Walnut St.

CLEVELAND, OHIO

4615 Perkins Ave.

HOUSTON, TEXAS

1121 Rothwell St.

DALLAS, TEXAS—9000 Sovereign Row, Brook Hollow Industrial District

Circle No. 22 on Reader Service Card

THE REFRIGERATION & AIR-CONDITIONING



# MACKENZIE WALTON CORPORATION

*Our  
Golden  
Anniversary  
Year...*

50th Anniversary  
1909-1959  
**MACKENZIE  
WALTON CORP.**  
PAWTUCKET, R. I.  
Subsidiary of  
READING  
TUBE CORP.

## Marking a Half-Century of Precision Achievement!



Fifty years ago we began contributing to the development of many of the then infant instrumentation and gauge industries which have since grown in size and in importance to our country's economy and prosperity.

As specialists in the production of precision seamless tubing of copper and copper base alloys, we have grown with our customers in such fields as instrumentation, bourdon gauge, air conditioning, refrigeration, thermostatic, automotive and band instrument tubing. In those industries, quality and accuracy are indispensable and our record for delivering both has been well established over half a century of dependable service.

Our thanks go to our many accounts for their consistent patronage.

With the added research facilities available to us, as a subsidiary of Reading Tube Corporation, we now enter a second half-century of even more exciting precision achievement!

### MACKENZIE WALTON CORP.

Subsidiary of READING TUBE CORPORATION • Empire State Bldg., N. Y., N. Y.  
478 PAWTUCKET AVE., PAWTUCKET, R. I.  
PAwtucket 2-6837

*Makers of Quality Precision Small Seamless Tubing in Copper & Copper Base Alloys*

# Let's Talk



## CONDENSER CLEANING

Water-cooled condensers may be cleaned either mechanically or by the use of chemicals. Mechanical cleaning requires shutting-down, dismantling of equipment, and—under emergency summer conditions—costly overtime. Also . . . mechanical cleaning usually scores condenser tubes, thereby increasing the frequency for cleaning.

**ULTRA SOLVEX**—a dry, granular chemical cleaner relieves high head pressures and cleans condensers without costly shut-downs.

**SAFE** . . . **ULTRA SOLVEX** is safe-to-handle, safe-to-use. Does not destroy metals as do strong liquid acids. **ULTRA SOLVEX** is safe for operator . . . safe for equipment.

**FAST** . . . **ULTRA SOLVEX** cleans by chemical disintegration. Eliminates scraping and reaming. Head pressure starts down in minutes. No long shut-downs.

**EFFECTIVE** . . . Best for the tough cleaning jobs. The New Improved Formula makes **ULTRA SOLVEX** even more effective than ever before.

IT IS QUALITY THAT COUNTS

# ULTRA SOLVEX



## CHEMICAL SOLVENT CO.

P. O. Box 487 • Birmingham, Ala.

Circle No. 25 on Reader Service Card

## G-B DUCT DISTRIBUTORS

(See ad on facing page)

**AKRON, Ohio**, The Asbestos Supply Co.  
**ALBANY, Ga.**, Industry Insulation Co.  
**ALBANY, N. Y.**, Hudson Valley Asbestos Corp.  
**ALBUQUERQUE, Mt.**, States Insulation Co.  
**AMARILLO, Morrison** Supply Co.  
**ATLANTA, Ga.**, Reynolds Aluminum Supply Co.  
The Thompson Company  
**AUGUSTA, Ga.**, Noland Company  
**BALTIMORE, Md.**, Leroy Insulation Company  
**BEAUMONT, Tex.**, Solar Supply Company  
**BILLINGS, Mont.**, Big Horn Supply, Inc.  
**BIRMINGHAM, Ala.**, Hall-Newsome Co.  
Hart-Greer, Inc.  
Shook & Fletcher Supply Co.  
Reynolds Aluminum Supply Co.  
**BOSTON, Mass.**, Homans-Kohler, Inc.  
**BUFFALO, Ind.**, Industrial Insulation Sales, Inc.  
North Star Supply Company  
**CHARLESTON, W. Va.**, Dunbar Metal & Sup. Co., Inc.  
**CHATTANOOGA, Noland** Co.  
**CHICAGO, E. C.** Carlson Company  
Culberg Asbestos & Cork Co.  
**CLEVELAND, Ohio** Asbestos & Ins. Co.  
**COLUMBUS, Santeler** Brothers  
Culberg of Ohio  
**CORPUS CHRISTI, Precision** Insulation Co.  
**DALLAS, Insulation** Supply Co.  
Payne-Ladewig, Inc.  
**DAVENPORT, Iowa**, Republic Electric Co.  
**DECATUR, Ga.**, Lennox Industries  
**DENVER, Gene** Wright Lumber Co.  
**DES MOINES, Iowa** Asbestos Company, Inc.  
**DETROIT, G. L.** Johnston Co.  
**ENGLEWOOD, N. J.**, Englewood Supply Co.  
**EVANSVILLE, Ind.**, George Koch Sons, Inc.  
**FT. WAYNE, Ind.**, M. H. Hill, Inc.  
**FT. WORTH, Bracken** Co.  
**GULFPORT, Miss.**, Paine Supply Co.  
**HOUSTON, Precision** Insulation Co.  
**INDIANAPOLIS, Central** Supply Co.  
**JACKSON, Miss.**, Paine Refrigeration & Supply Co.  
**JACKSONVILLE, Ferber** Sheet Metal Works  
Florida Air Conditioners  
Reynolds Aluminum Supply Co.  
Southernair Distributors  
**KANSAS CITY, Mo.**, Central Supply Co.  
Superior Distributing Corp.  
**KEWANEE, Ill.**, Mechanical Insulation Co.  
**KNOXVILLE, Tenn.**, Holston Air Conditioning Corp.  
**LAKE CHARLES, La.**, Solar Supply Company  
**LAREDO, Tex.**, Anderson-Sturgis Company  
**LITTLE ROCK, Gunn** Distributing Co.  
**LOS ANGELES, Western** Fibrous Glass Products Co.  
**LOUISVILLE, General** Insulation & Roofing Co.  
**LUBBOCK, Tex.**, Morrison Supply Co.  
**MACON, Ga.**, Industry Insulation Co.  
**MEMPHIS, A. T.** Distributors, Inc.  
**MIAMI, Crabtree** Insulation Co.  
Fiber Duct Dist.  
Reynolds Aluminum Supply Co.  
**MILWAUKEE, F. R.** Dengel Co.  
**MINNEAPOLIS, Asbestos** Products, Inc.  
**MYRTLE BEACH, S. C.**, Air Conditioning Supply  
**NASHVILLE, Central** Air Conditioning & Heating Co.  
Reynolds Aluminum Supply Co.  
**NEWARK, N. J.**, Eastern Steam Specialty Co.  
**NEW ORLEANS, Eagle** Asbestos & Packing Co.  
Solar Supply Co.  
**NEW YORK, Eastern** Steam Specialty Co.  
**NORFOLK, Va.**, Automatic Equipment Sales Co.  
**OKLAHOMA CITY, Ball** Dist. & Engineering Co.  
**OMAHA, Cardinal** Supply & Mfg. Co.  
**ODESSA, Tex.**, Morrison Supply Co.  
**ORANGE, Conn.**, Insulation Supply Co.  
**PASSAIC, N. J.**, Ral Supply Co.  
**PHILADELPHIA, John** F. Scanlan, Inc.  
**PHOENIX, Kircher** Asbestos & Rubber Co.  
**PITTSBURGH, Dravo** Corp.  
**RALEIGH, N. C.**, Reynolds Aluminum Supply Co.  
**RICHMOND, Va.**, Automatic Equip. Sales Co., Inc.  
Reynolds Aluminum Supply Co.  
**ROCHESTER, N. Y.**, Rochester Oil Burner Company  
**ROCKFORD, Ill.**, Mott Brothers Co.  
**SALT LAKE CITY, Bulough** Asbestos Supply Co.  
**SAN ANTONIO, The** Bracken Company  
**SAN DIEGO, Western** Fibrous Glass Products Co.  
**SAN FRANCISCO, Western** Fibrous Glass Products Co.  
**SAVANNAH, Ga.**, Reynolds Aluminum Supply Co.  
**SEATTLE, Western** Fibrous Glass Products  
**SHREVEPORT, La.**, Frith Sales Co.  
**SOUTH BEND, Place** & Co.  
**ST. LOUIS, Hollander** & Co., Inc.  
**ST. PAUL, Minn.**, Asbestos Products, Inc.  
**SULLIVAN, Ill.**, Lewie David, Inc.  
**SYRACUSE, N. Y.**, Burnett Process, Inc.  
**TALLAHASSEE, Baker's**, Inc.  
**TAMPA, Eagle** Roofing & Art Metal Works, Inc.  
**TULSA, Okla.**, Ball Distributing & Engr. Co.  
**VANCOUVER, B. C.**, Fleck Brothers Limited  
**WASHINGTON, D. C.**, Walter E. Campbell Co.  
**WINSTON-SALEM, N. C.**, Air Conditioning Supply



### September 27-30, 1959

Refrigeration and Air Conditioning  
Contractors Association  
(National Convention)  
Ambassador Hotel  
Los Angeles, Calif.

### October 5-7, 1959

American Gas Association  
(Annual Convention)  
Conrad-Hilton Hotel  
Chicago, Ill.

### October 28-30, 1959

Oil-Heat Institute of America  
(Board of Directors Meeting)  
The Homestead  
Hot Springs, Va.

### October 30 - November 1, 1959

Refrigeration Service Engineers  
Society (Annual Convention)  
Atlantic City, N. J.

### October 30-November 1, 1959

American Society of Refrigerating  
Engineers  
(Semiannual Meeting)  
Traymore Hotel  
Atlantic City, N. J.

### November 1-2, 1959

Air Conditioning & Refrigeration  
Wholesalers (Annual Meeting)  
Atlantic City, N. J.

### November 2-4, 1959

National Commercial Refrigerator  
Sales Association  
(Annual Convention)  
Traymore Hotel  
Atlantic City, N. J.

### November 2-5, 1959

11th Exposition of the Air-Conditioning & Refrigeration Industry  
Convention Hall  
Atlantic City, N. J.

### November 9-13, 1959

National Electrical Manufacturers  
Association  
(Annual Meeting)  
Traymore Hotel  
Atlantic City, N. J.

### December 1-4, 1959

National Warm Air Heating & Air-Conditioning Association  
(Annual Convention)  
Chase Hotel  
St. Louis, Mo.

THIS  
\$75,000 CALIFORNIA HOME  
CALLED FOR A DUCT SYSTEM  
OF THE HIGHEST

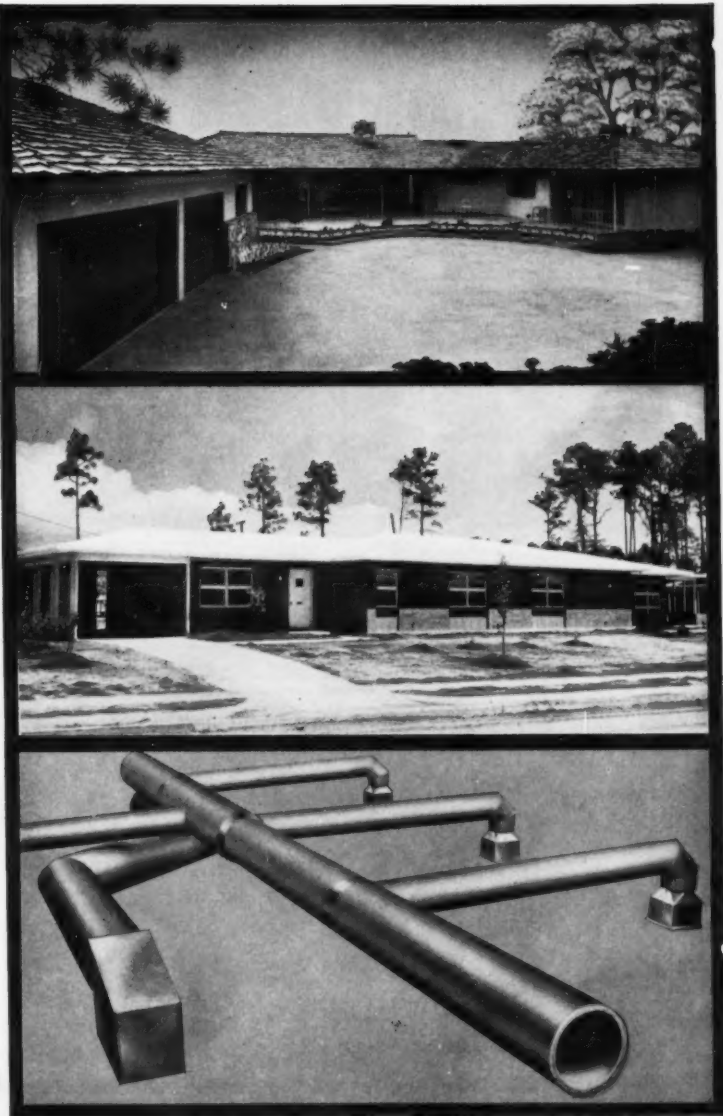
**quality..**

AND IN THIS  
800-UNIT CAPEHART HOUSING  
PROJECT, EMPHASIS WAS ON

**economy..**

IN BOTH CASES  
CONTRACTORS INSTALLED

**G-B Duct..**



If you're interested in satisfying both price- and quality-conscious customers, next time specify G-B Duct—the first and only prefabricated round glass fiber duct tested and labeled by Underwriters' Laboratories as an air conditioning and heating duct.

With G-B Duct you get quality performance because the uniformly thick glass fiber walls provide thermal insulation and maximum sound absorption. Also, the continuous airtight plastic vapor barrier

sleeve positively prevents condensation.

And installing G-B Duct is economical, too, because with G-B Duct you get a neater, better job—faster. G-B Duct comes in one-piece 6' sections, ready to use—no preassembly, no folding. It's easy to cut and fit with a knife and the templates are provided. Sizing is no problem because G-B Duct is made in the same nominal sizes as round sheet metal pipe and fittings.

FOR NAME OF YOUR NEAREST SUPPLIER, SEE ADJOINING COLUMN

**GUSTIN-BACON**

228 W. 10th St., Kansas City, Mo.

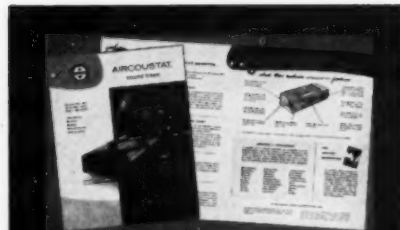
*Manufacturing Company* **gb**  
GUSTIN  
BACON

Thermal and acoustical glass fiber insulations • Molded glass fiber pipe insulation • Couplings and fittings for plain and grooved end pipe  
Circle No. 26 on Reader Service Card

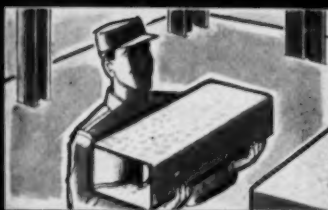
BUSINESS • • • JULY 1959

# 7 ways AIRCOUSTAT<sup>®</sup> can save you time and money

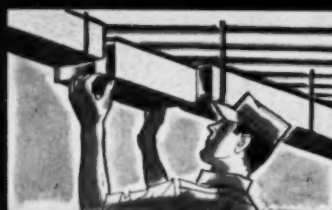
## Sound Traps . . . with Guaranteed Results



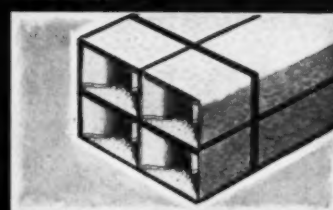
**1) Easy to select**—Just 3 steps to specify proper model. Save time, avoid errors.



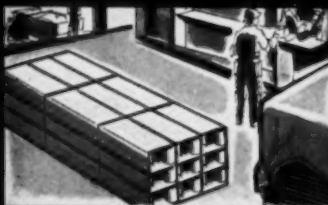
**2) Easy to handle**—No riggers or special equipment needed. Large units composed at job site.



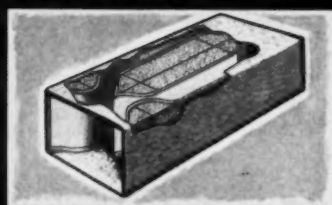
**3) Easy to install**—Units are installed the same as ductwork. Units have 2" extensions.



**4) Fits all duct sizes**—Big units are easily assembled from small Aircoustat units.



**5) No storage problem**—Units are delivered right to the job site, ready to install.



**6) No maintenance**—Units are fire-resistant, dust-proof and built to last a lifetime.



**7) Guaranteed results**—Solves every noise reduction problem. Units are completely reliable.

Pre-engineered by Koppers to eliminate guesswork, unnecessary calculations and difficult installations, AIRCOUSTAT Sound Traps guarantee trouble-free silencing of all duct-transmitted noise . . . at a savings in time and money to you.

AIRCOUSTAT selection is quick, simple and reliable. A choice of over 60 stock models, fabricated in 6 lengths, solves every noise

reduction problem. AIRCOUSTAT is built to give a lifetime of maintenance-free service.

Write today for your copy of the AIRCOUSTAT Selection Manual, a quick guide to the right unit or combination of AIRCOUSTAT units to eliminate duct-transmitted noise in all air handling systems. Write KOPPERS COMPANY, INC., Sound Control Department, 3207 Scott Street, Baltimore 3, Maryland.



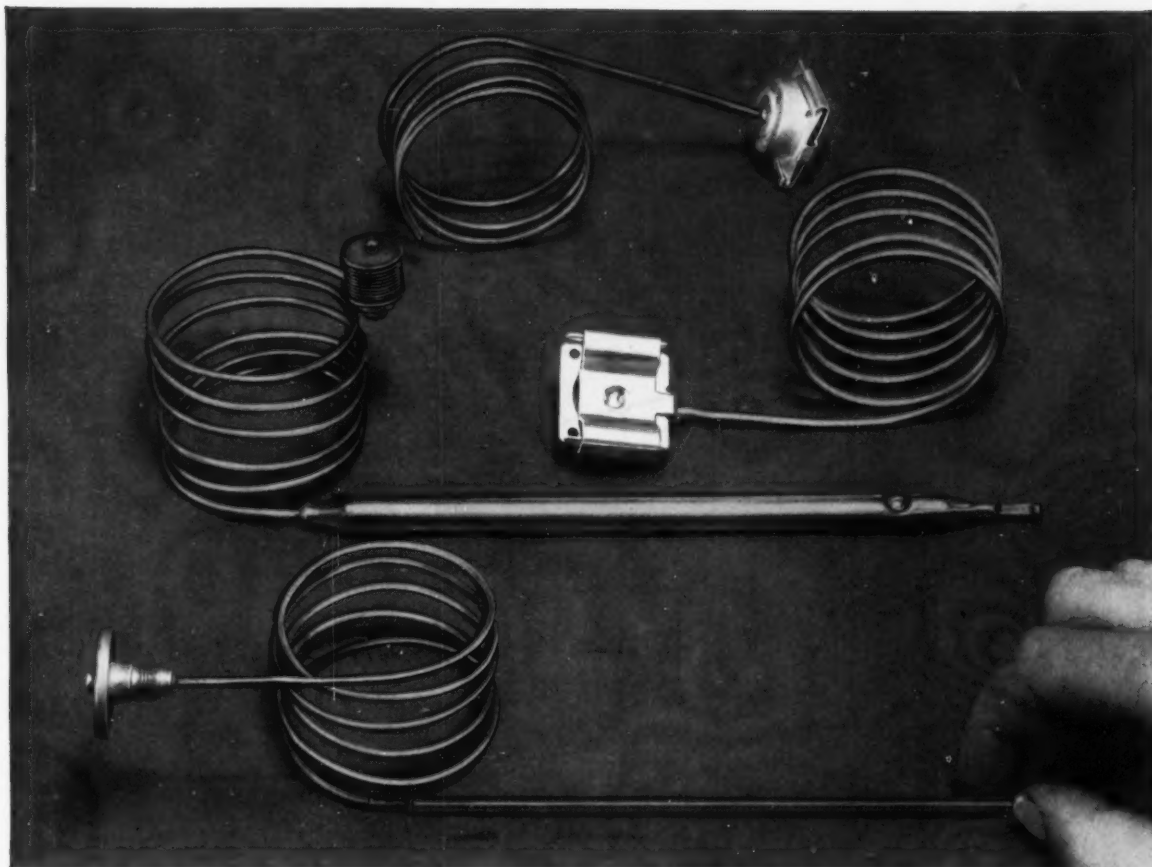
## SOUND CONTROL

METAL PRODUCTS DIVISION

Engineered Products Sold with Service

Circle No. 27 on Reader Service Card





**Top:** Two gas-filled sensor assemblies, consisting of a phosphor bronze bellows and a length of capillary tube, used in household refrigerators. **Center:** a liquid-filled sensor assembly, with bellows and sensing bulb connected by capillary tube used in a gas space heater. **Bottom:** a Robertshaw-Bridgeport Diastat heat sensing unit with diaphragm and sensing bulb connected by capillary tube, used in electric range oven controls.

## Temperature sensors require high, uniform quality in capillary and bulb tube at Robertshaw-Bridgeport

The temperature sensing elements made by Bridgeport Thermostat Division of Robertshaw-Fulton Controls Company provide a simple and accurate means of controlling temperatures in refrigeration, air conditioning, heating, and cooking equipment. Important parts of these elements are furnished by French Small Tube Division of the American Brass Company.

Robertshaw-Bridgeport can provide manufacturers of controls and appliances consistently accurate calibration and dependable operation over long periods of uninterrupted service, largely because of the close precision quality of French capillary tube and fabricated

sensing bulbs. These specially fabricated tube products must be scrupulously clean, meet strict dimensional specifications, and be free from flaws that would cause faulty operation. Robertshaw-Bridgeport also looks to the supplier for creative technical services to help meet the ever-changing needs of its customers as new models and applications come up. The French Small Tube Division of The American Brass Company, specialists in bulb and capillary tubing, have been consistently meeting these requirements.

**Quality Tube and Creative Technical Services.** Whether you need capillary tube, restrictor tube, bulb and tube

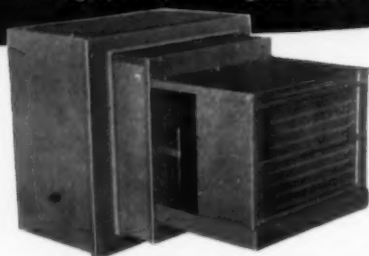
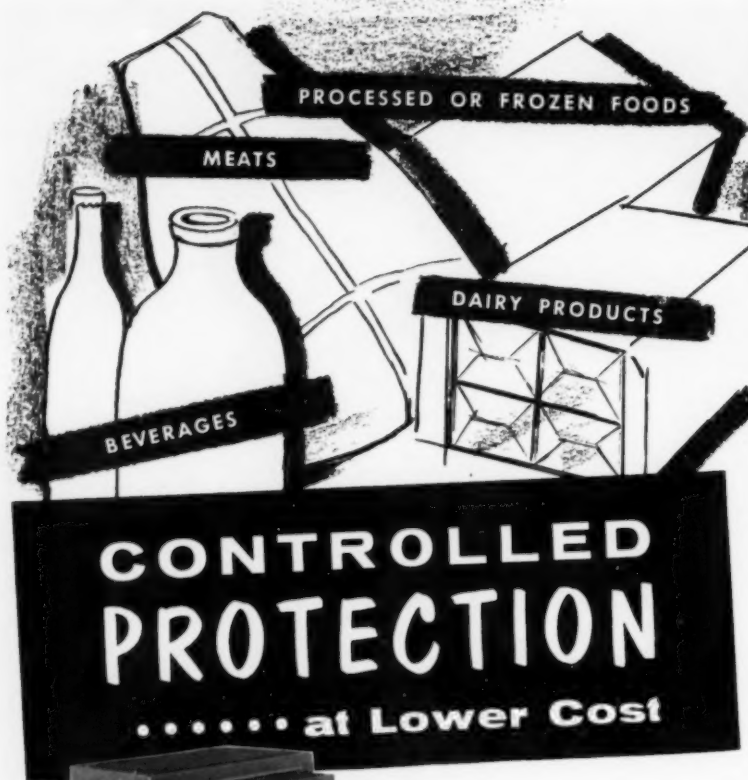
assemblies—in either copper or aluminum—the French Small Tube Division has specialists to help you find the most economical way to do a job—the experience and facilities to turn out the tubing you need. For further information or technical assistance, write: French Small Tube Division, The American Brass Company, Box 1031, Waterbury, Connecticut.

**ANACONDA®**

**CAPILLARY AND RESTRICTOR TUBES**  
Made by French Small Tube Division of  
**THE AMERICAN BRASS COMPANY**

ANACONDA PRODUCTS FOR THE REFRIGERATION AND AIR-CONDITIONING INDUSTRY





Model 100M—1 h. p. Air Cooled Unit for 12' x 12' x 7½' Cooler. Completely automatic, requires 20¼" x 20¼" wall opening—only.

### TAYLOR-BURCH PACKAGED COOLER UNITS...

The latest, most modern development in economical, maintenance-free, space-saving refrigeration units. Operation and defrosting is completely automatic—completely dependable under all conditions. All Taylor-Burch models are of the self-contained or "packaged" type—easily installed without special technical knowledge or tools. And—better yet, they are available in a wide range of models and styles to suit each and every need, more economically.

Whatever your plan—cooling, freezing, ice-holding, etc., look first to Taylor-Burch for the best in refrigeration equipment.

**LITERATURE AND SPECIFICATIONS AVAILABLE ON REQUEST**

Gentlemen: Please send complete information on your packaged cooling units.

Name

Company

Address

City  Zone  State

☐ Please have your local representative contact me.

**TAYLOR-BURCH**

Refrigeration Products JACKSON, MICHIGAN



*as we see it...*

by Jim McCallum

What's the chance of switching a room air-conditioner prospect over to your make of equipment, even though he had another brand in mind when he started looking? Mighty good, according to the results of a 5-year study of buying habits recently completed by the Batten, Barton, Durstine & Osborn advertising agency.

The figures show that during the period covered by this study an average of only 32.5% of the people surveyed actually bought the same brand of air-conditioner they started out to get. A whopping 67.5% ended up by purchasing another make.

Seems like brand switching can be a big factor in your business if you sharpen up all your sales tools and gear your merchandising efforts to make the most of it.

\* \* \*

We have been asked many times by contractor groups where they can get educational films to show at their meetings. A number of good ones are available from various sources, and during the past month announcements of a couple of new ones have crossed our desk. So if you're busy planning the fall program for your own group, pay attention!

"Insulating with Plastic" is the title of a sound-color 35-mm strip film recently produced by Armstrong Cork Co.'s insulation division. It traces the development of flexible foamed plastic insulation, describes its properties, and shows a number of application techniques. About 45 case histories of all kinds of jobs in the air-conditioning and refrigeration field are shown.

This non-commercial film is available through all insulation division field offices, as well as Armstrong's home office in Lancaster, Pennsylvania.

The Busway Section of the National Electrical Manufacturers As-





down  
from  
the  
Frozen  
North  
comes  
**UCON**  
**IKE**

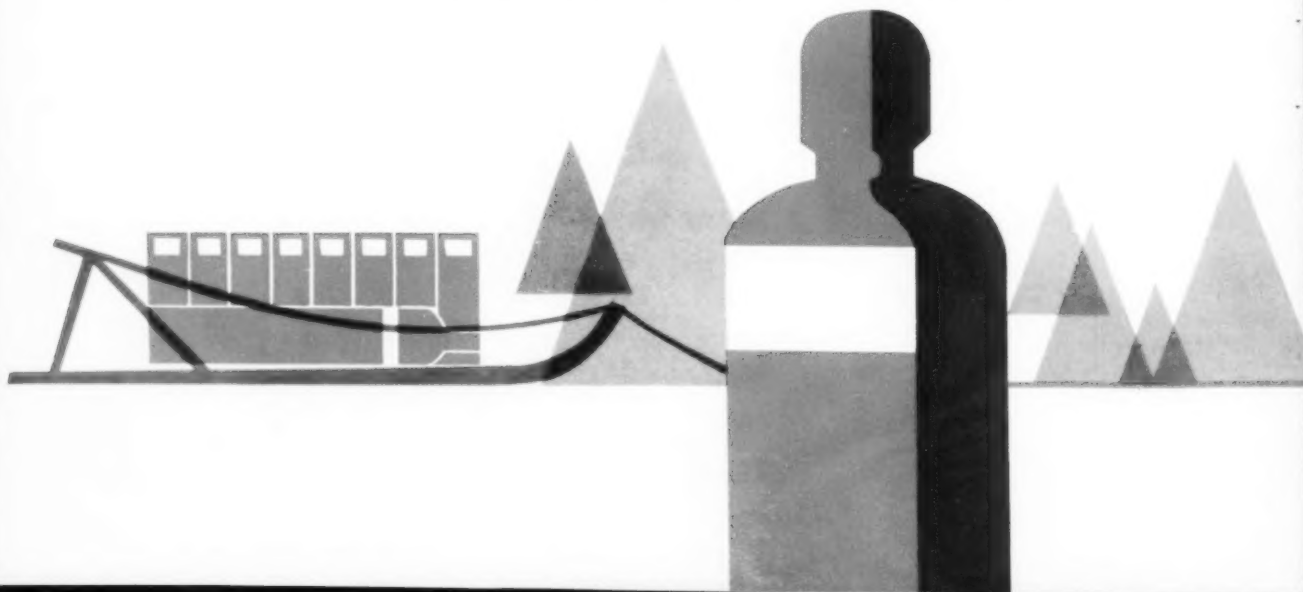
The most fabulous refrigeration expert of them all!



## Meet **UCON IKE**

Here's Ucon Ike, representing new UCON Refrigerants. He's a friendly fellow, a helpful guy who really knows refrigerants (it gets mighty cold in the far North). He's resourceful, too...willing to try new ways of doing things. (Example: who but Ucon Ike ever tamed a moose before? Discovered one moose-power far out-pulls eight dogpower!) Take a good look at him, because he'll soon be one of the most familiar faces in the industry.

We think you'll enjoy knowing Ike. He *is* UCON Refrigerants—America's newest, top-quality refrigerants now available to you. He stands for the *people* who go with UCON Refrigerants...people who know and care about your problems...people who make the difference. So, remember Ucon Ike when you think of UCON Refrigerants — made by Union Carbide Chemicals Company. Ansul Chemical Company is exclusive sales agent.







**NORTHERN LIGHTS  
REFRIGERATION CO.**



Ucon Refrigerants—  
from your wholesaler,  
anytime  
5 top-quality grades  
Full range of unit sizes  
Color-coded at the top  
Personalized service



**Ucon**  
BRAND  
refrigerants

exclusive sales agent



Ucon Brand Refrigerants are manufactured by  
**UNION CARBIDE CHEMICALS COMPANY** — Division of Union Carbide Corporation  
30 East 42nd St., New York 17, N. Y.

Exclusive Sales Agent to Air Conditioning and Refrigeration Wholesalers  
**ANSUL CHEMICAL COMPANY, Marinette, Wisconsin**

Ucon and UNION CARBIDE are registered trade marks of Union Carbide Corporation

sociation is offering a 15-minute color slide presentation on modernizing or expanding wiring systems in commercial or industrial buildings. On request, a technical representative from one of the member companies of this NEMA section will present the film and answer any questions.

If you're interested, write Roy Theiss, secretary, Busways Section, National Electrical Manufacturers Association, 155 E. 44th St., New York 17, N.Y. He'll send you a 16-page booklet on Busway applications and tell you how you can arrange for presentation of the film.

\* \* \*

**Looks like** this will be a mighty good year for home building.

Plans of 325 builders in 35 cities surveyed by *Fortune* magazine indicate 1,350,000 starts in private non-farm dwellings.

The Federal Reserve Board reports that 25% more families intend to buy homes this year than last, and financing is easier.

*Architectural Forum* reports that \$3.4 billion was spent in the first quarter for new dwelling units, a jump of 32% over the first quarter of 1958. And by March new homes were being started at a seasonally adjusted rate of 1,390,000 per year.

No matter how you read these figures, that's a powerful lot of new houses. But how many of them will be air-conditioned?

\* \* \*

**Room air-conditioner dealers** stand to benefit from an informative new 16-page booklet, completely non-technical in nature, telling John Q. Public "How To Choose the Air Conditioner That's Right for You!"

Produced by the room air-conditioner section of National Electrical Manufacturers Association (NEMA), this pocket-size booklet is full of helpful hints for the consumer who wants to make a wise choice of an air-conditioner to help him beat the heat this summer. In everyday language it explains the basic functions of a room air-con-

ditioner, the differences in various types of units, and the benefits offered.

Last page of the booklet contains a simplified cooling load estimating guide in coupon form. The reader is urged to fill in this coupon and take it to his dealer to help him specify a unit of the proper size.

NEMA is distributing this booklet through electric utilities and also through manufacturers of room air-conditioners to their deal-

ers. If you haven't seen it, and you think it could help you sell more room air-conditioners, ask your manufacturer about it. If he can't supply you, you can get copies of the booklet at nominal cost directly from National Electrical Manufacturers Association, 155 E. 44 St., New York 17, N.Y.

Here's another sales tool for you. Make the most of it!

**YOUR WHOLESALE  
CAN SERVE YOU — LET HIM!**

Whatever type of insulation  
is specified on your job...



Laykold Insulation Adhesive has been the "standard" of the industry for more than 20 years. It is approved and used by a majority of the leading insulation manufacturers and contractors in the industry.

Laykold Insulation Adhesive is a cold-applied, asphalt-base material of smooth, buttery consistency that quickly sets to a tacky film. It is easier and faster to use. Applied by brush or spray, you get superior performance on every job, from vapor barrier construction to placement of insulating materials on walls, floors and ceilings.

Call the Laykold Engineer in our nearest office for full information on Laykold Insulation Adhesive.



## American Bitumuls & Asphalt Company

320 MARKET, SAN FRANCISCO 20, CALIF.  
Perth Amboy, N. J.  
Baltimore 2, Md.  
Cincinnati 38, Ohio

Atlanta 8, Ga.  
Mobile, Ala.  
St. Louis 17, Mo.  
Tucson, Ariz.

Portland 8, Ore.  
Oakland 1, Calif.  
Inglewood, Calif.  
San Juan 23, P. R.

**BITUMULS<sup>®</sup>** Emulsified Asphalts • **CHEVRON<sup>®</sup>** Paving Asphalts • **LAYKOLD<sup>®</sup>** Asphalt Specialties

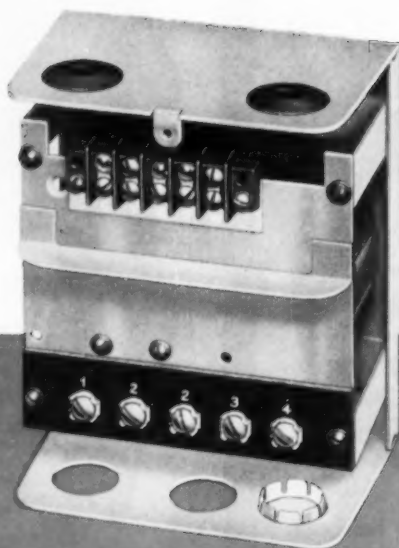
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# FAN CENTER

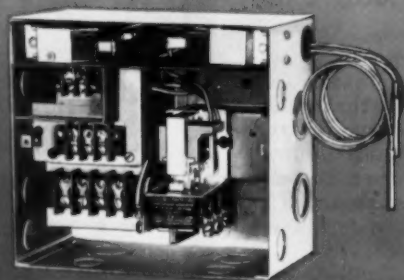
to control air handling equipment

For residential air conditioning systems with remote cooling equipment... always use the Penn Fan Center to control the Fan Coil Unit. It saves you installation time and assures most efficient operation. Compact, it combines a transformer with fan relay and heating relay... one or both. On remote condensing units or water chillers, specify the Penn Cooling Center. Both of these "centers" have the latest engineering advances to assure the finest air conditioning performance possible! Remember, when it comes to controls...

It's best to buy Penn!



FAN CENTER... 6" high, 4½" wide

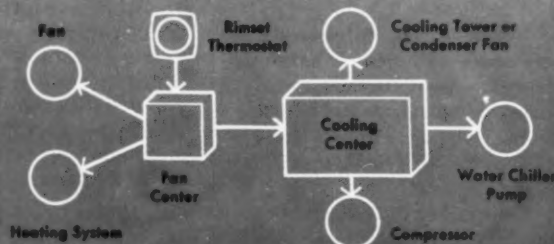


COOLING CENTER... 7" high, 6" wide

RIMSET  
Thermostat



"FUNCTION" DIAGRAM



**PENN CONTROLS, INC.** Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N. Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Circle No. 32 on Reader Service Card

THE REFRIGERATION & AIR-CONDITIONING



## Are You a Sales Hypocrite?

**D**URING the past six months we have completed a most interesting project. We wrote to more than 6500 air-conditioning, heating, and refrigeration contractors in 21 metropolitan areas. Usually, in such a survey, a publisher asks questions about reader's reactions to his magazine. But our approach was different. We wanted to know about the contractor himself. We asked him what type of business he was in, what products he sold, how big his volume was, and what he considered to be his principal problems.

Needless to say, we did not get back 6500 replies. In fact, just a few more than 1000 contractors responded. Personally, I was greatly disappointed by this return. But the statisticians tell me that this is a good response — or sample, as they call it — for a questionnaire of this type. Be that as it may, we did get replies from more than 1000 contractors whose reported business volume ranged from less than \$50,000 to more than \$3,000,000 per year.

I've been watching these replies closely. And it seems to me that one of the questions asked has brought out a very significant point. The question: What line or lines of air-conditioning and heating do you sell? The vast majority of answers indicated that they sold more than one line. Some showed as many as five or six brands.

I have been a contractor myself, and I have always felt that a contractor should handle one major brand and support it, if necessary, with a secondary line. So when I see contractors who list Carrier, York, GE, Westinghouse, Airtemp, etc. combined, it just doesn't make sense to me.

It's like combining Chevrolet, Ford, and Plymouth in one dealership, with Cadillac and Volkswagen thrown in for protection. It simply wouldn't work in the automotive field, and certainly the manufacturers and dealers themselves would never permit it. Just from a competitive point of view, it's simply not a proper selling arrangement.

In replying to our survey, contractor after contractor stated that poor sales or low profit was a serious problem in his business. It's no wonder, when you consider what a weak sales story this multi-brand merchandising gives them. No contractor can sell effectively by asking his prospect what line he wants, instead of telling him why he should have one line in preference to any other.

The breakdown in the franchising arrangements of manufacturers has made it possible for unqualified and sometimes unscrupulous contractors to get hold of reputable and respected lines of equipment that otherwise they never would have been able to touch. This, as much as anything, has weakened contractor prestige and profit.

If anyone should be clamoring for limited franchises on product, it should be the contractors in all of the major marketing areas. For your own best interest you should be fighting for such a program. Or don't you have sufficient faith in any one product line to promote and sell it, to your own advantage as well as to the advantage of the product line itself? If this is the case, then we are all hypocrites when we sell a customer our products and services.

Good luck and good selling.

Thom Muir



BEFORE YOU BUY, THINK:

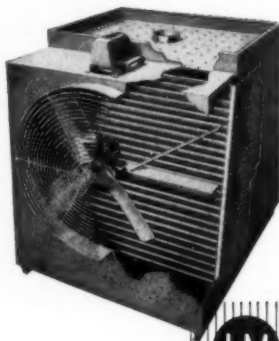
## Will fungus attack your cooling tower 2 years from now?

*Not if it's a Halstead & Mitchell cooling tower with a 20-Year Guarantee*

The specially treated wood decking in H&M towers resists rotting, fungus attack and algae which accumulates and obstructs air flow in most other towers. Performance remains "like new" in H&M cooling towers year after year.

Only Halstead & Mitchell offers a 20-Year Guarantee on the wetted deck against failure due to rotting or fungus attack.

Other H&M features for unusually low maintenance include permanently sealed fan bearings, and a heavy gauge steel cabinet protected against corrosion by three plastic coats applied *after assembly*. Be sure. Ask your local wholesaler for H & M towers, or write to Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.



H & M COOLING TOWER WITH  
PRESSURE TREATED DECKING

**HM**  
*Halstead & Mitchell*

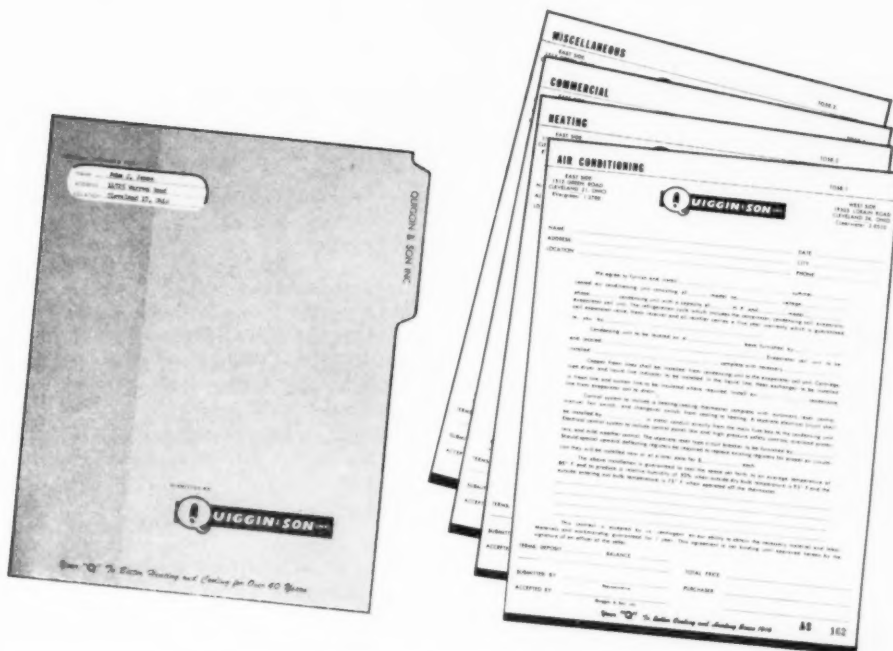
Water-Cooled Condensers • Cooling Towers • Air-Cooled Condensers • Finned Coil Products

Circle No. 33 on Reader Service Card

THE REFRIGERATION & AIR-CONDITIONING

# What's in a Proposal?

... This contractor answers with a new package aimed at more sales, and less paperwork



**THE SALESMAN** picks the proper one of these four specialized proposal forms, fills it out completely, then slips it into the specially imprinted file folder for presentation to the prospect.

**EDITOR'S NOTE:** "Good editing makes things happen" is the motto of THE REFRIGERATION & AIR-CONDITIONING BUSINESS. The article on this page points up again how this motto works out in actual practice. When one contractor read our award-winning article "What Happened When I Tried To Buy Year-Round Air-conditioning", which clearly indicated that a sloppy or incomplete proposal could drive away a customer, he took a long, hard look at his own firm's proposal forms. What he saw, he didn't like. Here's the story of what he did about it.

"Now IF WE LOSE A JOB we can't blame it on a poorly presented proposal." That's what Ed Taylor, sales manager of Quiggin & Sons, Inc., said after the Cleveland firm had developed new proposal forms. The firm also designed a jacket-folder to make its proposal presentation even more attractive.

Quiggin salesmen now have a choice of four forms for making up the different types of proposals. Taylor figures that his firm now saves 40% in overall print-

ing costs because the new proposal forms eliminate the need for buying separate work order forms. The forms also save a lot of work. Salesmen now spend less time preparing their proposals. The printed forms also mean less typing for the office help.

There is a form for each of these purposes:

1. One form, for residential air-conditioning jobs, lists the terms of the contract. All the salesman has to do is fill in a few blanks to indicate the size, type, and cost of the system.
2. A second form is used for heating jobs. It also is printed and has blanks for listing the necessary specifications.
3. A third form is designed mainly for commercial air-conditioning jobs where package units are used.
4. The fourth is a form for miscellaneous jobs involving sheet metal, water heaters, or repair work.

The forms come in sets of five copies, with carbon paper interleaved, and are perforated at the top for easy detachment. Quiggin keeps the original copy. The second goes to the customer. The third is used as a record for financing and sales contests. The fourth is used as a shop copy when sheet metal work is in-

*Continued on page 90*

by Edward Dowis

# Fresh Air Costs Money

. . . so selling air recovery equipment can save \$\$\$  
for your customers while it makes \$\$\$ for you

THERE ARE TWO WAYS you can get rid of objectionable odors in air-conditioned areas: dilute them by introducing a sufficient quantity of outside air, or remove them by means of air recovery equipment.

There are several reasons why the second solution may be better than the first. For one thing, every cubic foot of outside air brought into an air-conditioned area increases the air-conditioning load. Also, outside air can bring in vapors and solid containments which may

be worse than the ones you are trying to make inoffensive by dilution. And some rooms, such as toilets, have odors so strong that they cannot be connected to a central system because these odors would be transferred throughout the building.

Many people still believe it desirable to introduce outside air to an occupied building to maintain an adequate supply of oxygen. This theory has been disproved experimentally as well as mathematically. Air

## THE DOLLARS-AND-CENTS STORY

How much can you save in air-conditioning costs by using activated carbon air recovery for odor removal instead of diluting the odor with outside fresh air?

Here are some conservative figures on installed cooling and heating equipment cost per 1000 cfm of outside air:

2½ tons cooling equipment (@ \$200 per ton)	\$500.00
90,000 Btu/hr heating equipment (@ \$.003 per Btu/hr)	270.00
Total cooling-heating system	770.00
Estimated installed cost of activated carbon recovery equipment per 1000 cfm	250.00
Possible saving in capital investment per 1000 cfm of outside air	\$520.00

Chief operating cost of air recovery equipment is reactivation of the carbon. Normally this needs to be done about once a year, and should cost about

\$35, including labor, for the amount of recovery equipment needed to handle 1000 cfm. This means that operating cost of the recovery equipment runs only about \$3 per month per 1000 cfm of air.

Cost of conditioning outside air varies with conditions and hours of operation. But if you can reduce outside air requirements at a cost of only \$3 per month per 1000 cfm, you should be able to show substantial savings in operation costs of the complete system.

Estimate cost savings only on air required for ventilation where recovery equipment is not used. Of course air entering by infiltration or brought in to pressurize the conditioned area and prevent infiltration also will be treated by the recovery equipment. But at the same time this amount of outside air will reduce the amount of recovery equipment required and extend the periods this equipment can operate before needing reactivation.

Where local codes specify minimum outside air requirements, enforcing authorities may grant permission to reduce these requirements if air recovery equipment is used.



**TABLE 1 — Retentivity of Activated Charcoal for Common Odorous Vapors**

Expressed in % by weight of carbon before saturation

Odor	Retentivity %
Body odors, sweat	30+
Animal odors	30+
Cooking odors	Variable; 15+
Toilet odors	Variable; 15+
Paint solvents	24
Burning tobacco	25
Decaying flesh	25
Moth balls, naphthalene	30

which enters any above-ground structure by infiltration, or the minimum amount brought in to pressurize the structure to prevent infiltration, is always more than enough to maintain the oxygen supply. This is true for any normal type of construction or occupancy.

So in practice, except to control temperature and humidity in a limited area or for short periods of time, only enough outside air to control odors is required. Recommended amounts of ventilating air are listed in tables published in various engineering guides and texts.

The biggest argument against using outside air to dispel odors is expense. Every cubic foot of outside air brought in must be heated or cooled, humidified or dehumidified, to meet inside conditions. This means more air-conditioning equipment to start with, and longer periods of operation. Both cost money.

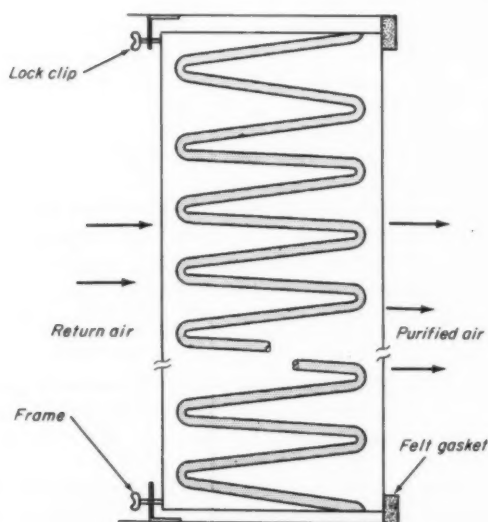


Fig. 1—Sectional view of typical recovery cell with accordion fold construction.

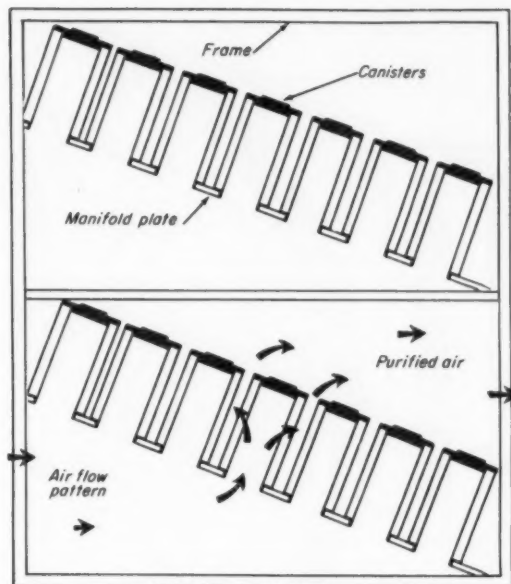


Fig. 2—Sectional view of canister recovery unit.

Proper use of air recovery equipment, making possible the recirculation of conditioned air within the enclosure, can reduce original equipment requirements and cut operating time. As the air passes through the recovery equipment, odor-causing vapors are removed. When return air is treated in this way before being restored to the temperature and humidity required for supply air, and when solid containments are removed by conventional methods, you get the most air-conditioning for the least money.

The active element commonly used for air purification is gas-adsorbent carbon, often called activated carbon or activated charcoal. To be effective, it must be prepared specifically for this purpose. It should be able to adsorb large quantities of offensive gases, vapors, and odors, and retain large amounts of odor-causing impurities before becoming saturated. When saturated, it should be capable of reactivation or else cheap enough so that it can be thrown away and replaced. And it should purify the air without appreciably altering temperature or humidity.

As the result of extensive research and long use, carbons and charcoals that meet all of these requirements are now available. At least one company makes its charcoal from coconut shells in order to get the qualities they require.

Table 1 shows the amounts of common impurities which can be removed from the air by activated charcoal before saturation. These amounts are expressed as percentages of the weight of dry carbon in the recovery units.

Air purifiers of this type are available for room air-conditioners, commercial and residential package air-conditioners, and central systems of all sizes. Self-contained units in a variety of designs and capacities can be spotted in localized areas or used with installa-

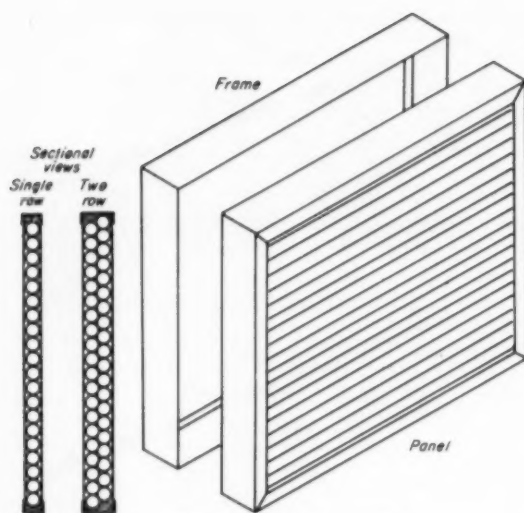


Fig. 3-Tubular recovery panel.

tions where for some reason it is not desirable to add the simple air recovery units to the existing air-conditioning system.

Recovery elements are available in a wide variety of shapes and sizes described as cells, panels, filters, or canisters. Each element consists of a frame holding wire mesh or perforated metal containers filled with activated charcoal. They are designed for uniform air distribution with minimum velocity and pressure drop. Small sizes may be of the throw-away type; larger ones can be reactivated at low cost.

Construction of typical air recovery units is illustrated in the first three drawings presented with this article.

Fig. 1 shows a unit with the carbon held between parallel perforated metal panels which are folded in accordion pleats to provide maximum surface area.

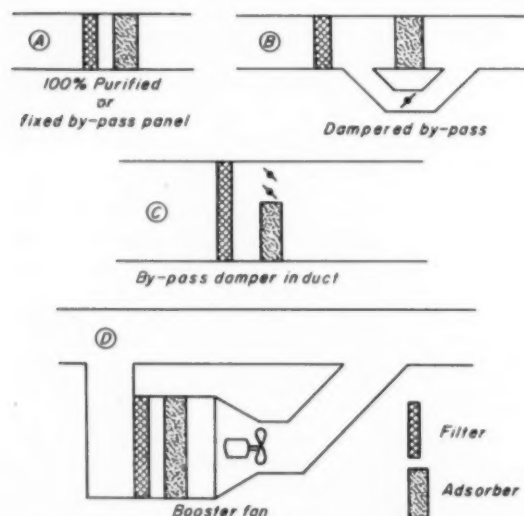


Fig. 4-Methods of proportioning by-passed and return air.

Standard sizes are 24 x 24 x 8 $\frac{3}{4}$ " and 24 x 12 x 8 $\frac{3}{4}$ ". The larger size has a purification capacity of 1000 cfm. Under normal conditions it should operate for a year or more before requiring reactivation.

A sectional view of a canister unit is shown in Fig. 2. A typical canister has an outside diameter of 4" and is 11" long. It has a capacity of 30 cfm. It is open at the bottom and closed at the top. Its concentric cylindrical walls are perforated, and the space between them (varying from  $\frac{3}{8}$  to  $\frac{3}{4}$ " ) is filled with activated carbon.

The canisters are fitted into holes in a manifold plate furnished by the manufacturer. The manifold plates are built into a frame by the contractor, usually in an angular position as indicated. Enough canisters should be installed so that their total capacity matches the volume of air to be purified.

Fig. 3 illustrates a tubular type of panel. One, two, or three rows of perforated, carbon-filled tubes are formed into a panel as shown. The panel fits into a frame. Any number of these units can be joined to provide the required capacity. These panels can be readily installed back of the filters or return air grilles of unit conditioners.

In addition to these types of units, a throw-away adsorber is available for simple installation in air-conditioners, forced air furnaces, and ventilators. It consists of a mass of fiber strips coated with carbon and built into a paperboard frame. This unit is available with or without dust removal media.

With the exception of these throw-away types equipped with dust removal media, activated charcoal units are not designed as air filters. Dust and other solid particles should be removed from the air before it reaches the recovery panel. Grease filters should be used where kitchen exhaust air is being purified for return to the system. Any foreign matter collecting on the surface of the recovery cells tends to increase the resistance to air flow through the activated media and diminish the efficiency of the unit.

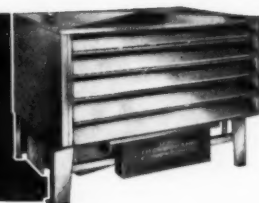
Resistance to air flow is an important factor in the application of recovery units. The greater the face area of the units through which return air is passed, the lower the velocity and the less the air resistance. So enough face area should be provided to keep total resistance of the system within fan capacity.

It is seldom necessary to purify the entire return air stream. Only enough purified air needs to be supplied to keep odorous vapors below the perceptible level. This is roughly the percentage of ventilating air that would be required without purification.

There are many ways of obtaining the desired proportion of purified and by-passed air. Several such methods are shown in Fig. 4.

Some panels are available which inherently by-pass a desired proportion of air. These can be installed in a duct or compartment as shown in Fig. 4-A. An adsorber for 100% purification would be installed the same way. Figs. 4-B and 4-C show methods of obtaining adjustable proportioning with dampers. A method of overcoming adsorber resistance with a booster fan is shown in Fig. 4-D.

# THROW YOUR COMPRESSOR \*OUT! .....



## \*OUTSIDE, THAT IS! .....

KRAMER'S outdoor compressor is the only compressor designed to operate outdoors for any application under all temperatures and weather conditions.

Completely assembled, wired, tested and factory run-in, it arrives on the job ready to operate. Simple hookup eliminates costly installation and control adjustment time. Kramer's outdoor compressor ends waste of valuable indoor space.

WRITE FOR BULLETIN

## KRAMER OUTDOOR ..... COMPRESSOR

**KRAMER TRENTON CO. • Trenton 5, N. J.**

46 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

Circle No. 34 on Reader Service Card



*...when refrigerants  
must be extra dry*

It takes a refrigerant that's really dry to keep Philadelphia's brand-new Penn Center skating rink dependably iced throughout its seven-month season. The 7200 sq. ft. area takes a beating from the sun for up to six hours a day. To do the job, York Corporation engineers determined that 700 GPM of calcium chloride brine would have to be handled at 15°F...when any moisture in the refrigerant would *immediately* freeze out and make the system inoperative.

York installed a 72-ton refrigeration system, called on Pennsalt Isotron 22 for the refrigerant

job...and the skating's been fine ever since. The *extra* purity and dryness of Isotron refrigerants...the dependable performance they give even in the toughest situations...have now made them York's choice. Why should you settle for less? Be sure to specify Isotron. Isotron Dept. 268, Pennsalt Chemicals Corporation, Three Penn Center, Philadelphia 2, Pa.



**ISOTRON**  
THE KEY TO MODERN LIVING

Circle No. 35 on Reader Service Card

THE REFRIGERATION & AIR-CONDITIONING





**THERE'S PLENTY OF ROOM** for more condensing units in this equipment trench beneath the supermarket's sales floor. All 21 of the units now installed are connected to the closed water circuit cooling tower shown at the rear.

## Closed Circuit System Pays Off for Supermarket

BEFORE PLANNING REFRIGERATION for a supermarket, take a close look at the advantages of a closed water circuit condensing system. An installation at King Soopers new market in Denver, Colo., first of its kind installed locally, shows what we mean.

This closed circuit system includes 21 water-cooled condensing units (a total of 85 hp) pulling an overall heat load of 680,000 Btuh. All of these units are connected to a single evaporative water cooler located at one end of the machine room. This combination has succeeded in holding proper temperatures in the market's refrigerated cases.

Each compressor has its own water-cooled condenser. Cooling water, in a closed circuit, is pumped through the tube bundle of the evaporative water cooler and then through the individual condensers and compressor water jackets, which are piped in parallel.

This system offers many advantages. For example, water in the closed circuit never is changed, so scale can't form in condenser tubes and water jackets. Also, cooling water temperatures are lower than those selected for evaporative condenser, and so scale will not tend to build up on the outside of the tube bundle.

Another good feature of this system is that you don't have to size each condenser circuit. You also avoid the tough job of matching each circuit to its condenser. Water valves on each condenser outlet supply just the right amount of cooling water needed by each compressor, up to the full capacity of the evaporative water cooler.

A further advantage is that the system maintains constant condensing pressures. Hardly any fluctuation is caused by changing wet bulb or dry bulb conditions.

No winter controls are needed. The water valves will continue to maintain design condensing temperatures even in cold weather.

So far, there have been no service calls on this job. It is felt that only a minimum of service will be required for many years.

As you can see from the photo, this installation is such a model of neatness that it is truly a "showcase" job. Not one line is crossed. All controls are housed, and internally wired in the control box.

The installation was made by R. A. Haines Co., Denver refrigeration and air-conditioning contractor, with equipment supplied by McCombs Supply Co.



**EVERY MONDAY MORNING**, salesmen of Air Conditioning Supply Co. meet with president Lind Davenport (center) to plan week's activity. Louis Horsefield (right) assigns the jobs, and from that point on each salesman is largely his own boss. INSET: Davenport and Horsefield explain the company's policies to Scholer Bangs (left), western editor of *THE REFRIGERATION & AIR-CONDITIONING BUSINESS*.



by Scholer Bangs, western editor

## ***Make Every Salesman an Executive***

SALESMEN ARE "TOP BRASS" executives in Air Conditioning Supply Co., a Los Angeles distributor that lands big orders with a frequency that delights its president, Lind Davenport.

This is unusual in a business which conventionally gives one executive the responsibility of working up bid estimates, and simply assigns salesmen to go out and get the orders.

At A.C.S. each of six sales engineers and one sales specialist (all but two hold engineering degrees) write their own complete quotations for jobs they will try

to sell. Their quotations go to all contractors who are bidding on overall construction jobs. Each is "Mr. A.C.S." in all follow-up negotiations and through the life of the contract.

Davenport believes that through this and other policies which vary from common practice he has established a good working relationship with his sales staff. Although president and court-of-last-resort, he acts more in the role of policy consultant to his salesmen, and seldom countermands their executive decisions.

How this sales technique works

can be seen any Monday morning, when the full A.C.S. sales staff, and Davenport, gather in the plan room of Southwest Builder and Contractor, regional trade magazine of the construction industry.

During this hour-long session, one company executive, Louis Horsefield, makes tentative assignment of new job prospects that he has gleaned over the week-end from the publishing firm's latest "Green Sheet", a daily listing of all new Southern California building permits, job bids called and awarded, and contractors bidding on specific jobs.

If a particular "Green Sheet" job is a live prospect for equipment represented by A.C.S., Horsefield will assign it to one of the sales engineers. His decision will be based upon familiarity of the salesman with the type of work involved, previous relations between the salesman and contractors bidding the job, location of the job in the salesman's basic territory, and existing work load of the salesman.

### **Assignments Are Flexible**

But this assignment is not final. Frequently another member of the sales staff will suggest that he be given the job. If his reasons are valid, this may be done.

He may feel for instance, that he has acquired an inside track with one or more of the contractors who are bidding. He may have picked up inside information about the job that will enable him to write a closer quotation than might be attempted by the original salesman. Or, he may report an unexpected work lull that will enable him to give the new job all-out attention.

### **Write Own Quotations**

Once the jobs are assigned, each salesman is on his own to begin study of blueprints and specifications, already available in Southwest Builder's print racks, and finally write detailed quotations for A.C.S.-distributed equipment that will fit into the job. It is up to him to see that all interested contractors are given copies of his quotation, and to follow up with necessary sales calls and revised quotations if contractors disclose plan and specification changes.

This technique is helpful in a number of ways, Davenport points out:

(1) The contractor receives written quotations that are detailed and final in contrast to lump sum bids made by many distributors;

(2) The A.C.S. salesman usually finds the welcome mat awaiting

*Continued on page 94*

**It pays to watch your**

**TELEPHONE**

**MANNERS**



LET THE TV EXPERTS HANDLE THE QUIZ GAMES. If somebody telephones your office don't put them through a third degree as to who they are, or why they are calling. Too many refrigeration and air-conditioning contractors and dealers embarrass, and make it difficult for a caller with such out-of-date questioning as "Who's calling?"

We know one individual in this business whose retort to such a question is, "I'm not allowed to give out that information." This may seem a little harsh, but it gets results.

Other common mistakes that irritate telephoning customers when using the telephone include:

Answering with "Hello" instead of with your name or the name of your company; wandering away from your desk without letting someone know where you can be reached or when you expect to return; interrupting personal visitors to make telephone calls; placing calls through a secretary or operator, and then keeping the called party waiting.

If you are guilty of any of these errors or others equally common, then you are hurting your personal efficiency, and your company's public relations, and setting a bad example for your employees.

In telephone selling you can't show the customer the product, you have to describe it. Here are some important tips for good telephone manners that should improve your telephone selling techniques.

Always identify yourself and your company when calling a customer, and speak enthusiastically about your company's line. Be sure you have all the facts at hand before making the call and never hesitate when outlining sales points over the telephone. Remember, the customer does not have any product literature to look at to bridge a gap in the conversation.

Don't hold the telephone too close to your mouth, or interrupt a customer while he is speaking to you. Don't try to talk with a cigar or cigarette in your mouth. Don't speak in a monotone, and never speak too rapidly.

Avoid the phrase "I think." Always use descriptive adjectives when speaking of your products. Don't ever fail to answer a customer's complaint. And never hang up abruptly without saying goodbye.

Telephone manners, like everyday manners, are something which we all should strive to improve. Unfortunately too many people are not aware of telephone manners. Make a conscious effort to remember how you handled each call you make or receive. By thinking back, you can see ways in which you could have improved it, and this will help you in your next call.



**BUYER MEETS SELLER** In one of the used equipment display rooms which make up the

## *SuperMarket for Trade-Ins*

Some commercial refrigeration distributors shy away from trade-ins, but Leo Bronstein goes looking for them. Here's how he makes them pay off.



**TO MAKE IT EASY** for shoppers, Capitol groups reconditioned units by type. Here are service meat cases and small freezers.



**BUY THEM AS IS**—that's the rule on Capitol's bargain dock. Units not worth fixing are sold here for what they will bring.



by Richard W. Bracker, associate editor

TRADE-INS MAY BE A HEADACHE for you, but for Leo Bronstein of Albany, N. Y., they mean extra profits. Bronstein, head of Capitol Refrigeration Co., Inc., always has felt that one reliable way to keep profits up was to sell used equipment. Now he has backed this belief by opening a supermarket for the sale of reconditioned equipment.

Bronstein had the chance to lease 4000 sq. ft. of space next to his building, and he took it. He says he just couldn't resist using it to display his used refrigeration and air-conditioning units.

Customers easily can find what they need. The used equipment is grouped by type of unit, such as dairy, frozen food, meat, and produce cases, bottle coolers, and packaged air-conditioning equipment.

Units are offered in all sizes and prices. Each carries a 90-day unconditional guarantee, which gives Bronstein an important selling point. He must be giving satisfaction, too, because his books show many repeat customers.

Bronstein also is very flexible in what he has to sell. A customer can buy a new machine and a used case if he wishes, or vice versa. "We want our prospects to become customers," Bronstein explains.

About 75% of the equipment sold in the supermarket was taken in as trade on new merchandise. But because Bronstein knows that there's big money to be made selling used equipment, he constantly is on the lookout for new ways to build up his stock.

One source of this extra supply is auctions, which he and his son, Don, attend. Don heads the planning department. Some comes from chain stores. When Bron-

stein hears of a chain store outlet going out of business or being refurnished, he contacts the firm's equipment division. He then buys units having resale value.

He makes it a rule never to cut prices on used equipment. "We spend a lot of time fixing up these units and we think our profit margin is fair," states Bronstein. "If people think our price is out of line we take them to our bargain dock in the back of the store and offer to sell them a used unit that has not been reconditioned. Some people who are more willing to spend time and effort than money buy these units 'as is'. But the rest realize that they couldn't duplicate the value of our reconditioned units."

Bronstein's idea of reconditioning used equipment doesn't only mean washing it or touching up scratches. Every compressor is checked on the spot for operating efficiency before one of the firm's 10 trucks brings it back to the rebuilding shop. If the machine requires any work a card is made out and attached to it.

### **Proper Reconditioning Means More Mark-up**

Each piece of used equipment brought back to the shop is taken apart. It's then cleaned thoroughly, refinished, and all worn parts are replaced. "We've got to make the unit saleable," Bronstein says.

He remembers one of the first trade-ins he ever accepted. It was an 8' double-duty freezer which was in very rough condition. Bronstein doubted it could be made saleable. The interior was rusty, the gaskets were in poor shape, and the coil was plugged up.

When the unit finally was ready for display, Bronstein was amazed to see what his rebuilders had done. The freezer had been steam cleaned. All rust had been removed from the interior and the interior had been repainted completely. All worn or chipped areas had been touched up with a porcelain kit. The worn gaskets were replaced. Finally, an air hose had been used to blow out all of the dirt in the coil.

Bronstein knows he could sell most of his used equipment without going to all this bother. But he also has found that thoroughly reconditioned units sell faster, easier, and with higher profits. This is true despite the high cost of labor and materials involved.

Used equipment sales, however, are not confined to those that take place in the supermarket. Salesmen receive a weekly bulletin from the service manager listing all unsold units, prices, and the amount of the salesman's credit.

A top source for leads comes from Capitol's own files. The company specializes in complete store planning and knows what the local merchants' needs are. Salesmen are required to call in orders immediately to reserve a unit for a customer. But units are not held beyond the next day without a deposit and written order.

The used equipment business not only has been a profitable one for Bronstein, but for his men as well. Employees can expect to draw their pay straight through the year without being laid off. There always is used equipment to clean up, even when the firm's regular service business is slow.



**RECONDITIONING IS THOROUGH** on all used units slated for display. Here, two Capitol workmen rebuild a trade-in.



## ***Cool the Help as Well as the Customers***

**This Arizona restaurant does it economically by using evaporative cooling in the kitchen and mechanical air-conditioning "out front"**

IS IT IMPORTANT to keep restaurant employees cool? Charles Helsing, Phoenix, Ariz., restaurant owner thinks that it is. So when he contracted with Arizona York Refrigeration Co., Phoenix, to air-condition his newly built restaurant he specified that the system would have to cool the kitchens and work areas as well as the dining section.

Helsing's experience as a restaurant owner has convinced him that comfort in what are ordinarily unpleasant, high temperature work areas of a restaurant can eliminate problems of employee absenteeism and turnover. Helsing's only restriction was that the kitchen areas be cooled as economically as possible.

Alfred Maggs, Arizona York president, pointed out that in the dry Arizona climate the best bet economically would be to use evaporative cooling in the kitchens, and a mechanically refrigerated system in the dining areas. So with Helsing's approval Maggs first tackled the job of cooling the dining area, which in itself presented plenty of problems.

The south and east walls of the rectangular building have large glass areas. A cantilever overhanging the roof was built to project out far enough to shade the windows during most of the day.

The restaurant seats 165 customers in booths, at tables, and along a counter rail. This normal heat load plus the not unusual 110 F temperatures of the Phoenix summers were other factors which Maggs had to consider when specifying a system that would do the job.

In addition, a 20' short-order section near the center of the restaurant presented still another problem. The counter is enclosed in a low tile partition. Two grills, toasters, two steam tables, and a charcoal broiler are all mounted side-by-side.

The system for the main dining area is a 25-ton combination heating and cooling system, with three hermetically-sealed compressors, and a 2-stop gas heating plant with a 450,000 Btu capacity.

Air handling equipment includes a dampening in-



**TWO TYPES OF AIR-CONDITIONING** provides comfortable conditions for both customers and employees of Helsing's restaurant in Phoenix. A 25-ton mechanically refrigerated system cools customers in the serving area (left), while evaporative cooling is used for the kitchen (above) and the short-order section (right). The dry Arizona air makes the use of economical evaporative cooling practical. Note how ducts are used as a decorative touch in dining room. In kitchen, air introduced through ceiling outlets (arrow) is exhausted through hood over range.



let which permits the operator to dial the amount of return and fresh air desired, ranging from 100% fresh air during the winter months when temperatures are between 75 and 85 F, to 75% return air and 25% fresh air during the hot summer months.

An equipment room on the second floor of the restaurant provides 30 x 15' of space in which all compressors, air handling equipment, the air-conditioning system, and the precipitator equipment is located. An indoor water cooling tower, using city water, is also located in the equipment room. Any part of the system can be reached in a matter of a few seconds for servicing.

Cooled air is distributed throughout the restaurant by 13 ducts. The ducts extend from the kitchen wall at the center rear of the restaurant out toward the windows. Each duct is only from 15 to 20' long, and feeds cooled air into the interior through 13 round ceiling outlets.

The ducts are suspended along the slanting ceiling of the restaurant and finished in bright red, contrasting effectively with the gray asbestos used on ceiling.

Return air is handled by an overhead duct system with grilles picking up the return air at 13 points. An outside source of fresh air is provided in the equipment room. Dampers in the fresh air intake and in the return air handling chamber are linked to a modulating electric motor and connected to a dial control in the restaurant.

Two sets of cooling and heating controls at opposite ends of the building control the entire system.

All of the return air as well as outside fresh air is

pre-filtered by a set of washable filters in the ductwork. During the winter months the return air is washed and filtered to provide the pure air required without refrigeration.

After pre-filtering, the air passes through an electrostatic filter. In combination with the air washer this provides clean air, completely free of smoke, dust, and other impurities.

Chief reason for the combination air washer and electrostatic filter is to prevent dust from settling on equipment and furnishings throughout the restaurant. This helps maintain an attractive appearance and cuts down substantially on the problem of maintenance.

To take care of the 20' short-order section, Maggs designed a 15' long invisible hood in the form of a glass wall, extending out about 10" above the charcoal broiler, cooking grills, and steam tables. The hood is covered with ceramic tile to harmonize with other wall trim in the building. The concealed space constitutes the hood for the cooking area and for exhausting all air in the short-order section. A 3500-cfm exhaust fan pulls away all cooking odors as they are created. Fresh air is pulled from a 3500-cfm evaporative cooler mounted on the roof.

The evaporatively cooled air enters the 20 x 25' short-order section and is confined by a clear glass canopy, which extends down about 2' from the ceiling at the front end, and at each side. The space below the glass enclosure, down to waist height, is left open to facilitate passing food to the serving area.

The evaporative cooler is enough to pull the tem-

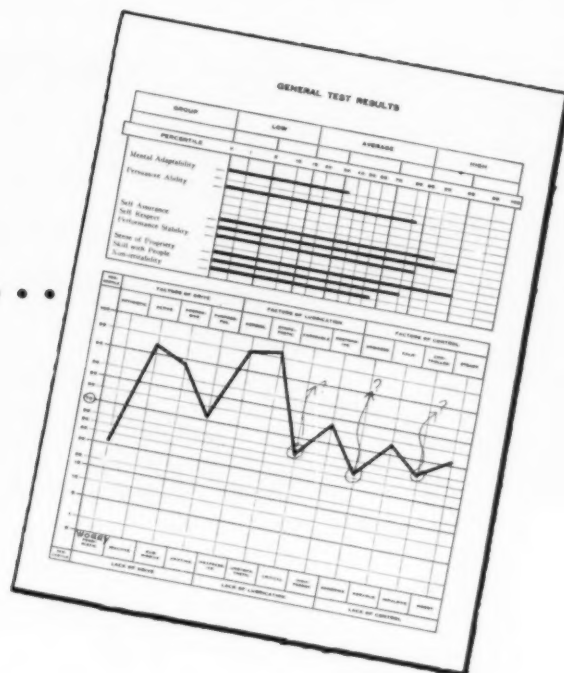
*Continued on page 92*

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**Here's a \$20 test  
that will help you**

# HIRE THE RIGHT SALESMAN

by Henry Lefer, eastern editor



YOU HIRED THE MAN because you thought he'd be a crackerjack refrigeration and air-conditioning salesman. After a few months you realize he's just a dud. So you shake hands and say, "So long." You're not too concerned, because you figure all it cost was his time and your time. And next time, you'll get the *right* man, and everything will turn out OK.

If that's the way you're used to figuring, you're not long for this tight, competitive market. Listen to what Milton Schwartz, president of S. & M. Schwartz & Co., New York distributor of food store refrigeration and air-conditioning, has to say:

"It costs me \$6000 and six months of time to train a salesman. That six months represents a waste of his time, my time, and the sales manager's time if he doesn't work out right. It's six months during which the competition has been getting business we wanted. It may be six months in which he's antagonized people and made mistakes it will take us a lot more than six months to straighten out. The \$6000 represents a sizable part of the profit we can expect on our \$2-million gross sales."

How many jobs do you have to sell to walk away with \$6000 profit? Six? Ten? Fifteen? That's how many extra jobs you have to sell just to pay the salary and expenses of the man who didn't pan out.

Bells don't ring and lights flash the minute the right man comes along, says Schwartz.

Some men make a terrific personal impression during an interview and appear to have the best of references, but haven't the persistence or aggressiveness to deliver the sales. Or they may rub their prospects the wrong way. Or they may tend to scatter their effectiveness under pressure, going off in several directions at once. Or they may need someone push-



He will work well for aggressive people and good workers. He thinks, however, he will meet some emergencies. If he plans his work with great care before he starts it, if he makes plans he will meet them.

MOODY.

Mr. [redacted] writes a good deal to interfere with his sales time that he spends. He will work on time.

APPLICANT: SALES REPRESENTATIVE

Mr. [redacted] is 37 years old, is married and has two children. He is a high school graduate and he had one year of study to accounting at [redacted] University. He has been selling since his discharge from military service in 1945. He was five years with [redacted] and for the past three years has sold for [redacted] and [redacted]. He stated preference for work in "sales" and he has been a successful. His stated preference for work is: "I like to sell — best suited for selling."

CAPACITY FOR WORK.

Mr. [redacted] improves new material with about average ease and with diligence on his part he should be able to master your products. He knows a good deal about the technique of selling and we believe he can handle a product persuasively.

Mental Adaptability	100
Persuasive Ability	85

APPROACH TO PEOPLE.

Mr. [redacted] is a cordial, sincere, careful manner and he should make a favorable impression.

Grade of Propriety	95
Sympathetic	90

He is somewhat inclined to let his sympathies run away from him and to expect too much of people. Then, when they disappoint him he may be critical of them and hurt by them. He would avoid this state of things if he would learn to be very tolerant in judging people in the first place. If he looks at them as they really are and if he considers their strengths and weaknesses, he will not expect impossible things of them.

METHOD OF WORKING.

Mr. [redacted] is a good sales starter and indeed, he is somewhat impulsive in the way he goes at things.

Active	95
Aggressive	90
Controlled	95

SAHLER AND ASSOCIATES

CONFIDENTIAL COMMENTS

APPLICANT: SALES REPRESENTATIVE

The report on Mr. [redacted] test results has been written so that you may allow him to read it if you wish him to only. The Confidential Comments are intended for you.

We think Mr. [redacted] is a good risk for you. He has had some how to push himself on a job.

His mental adaptability score shows that he is not a brilliant thinker and if you take him a little while to learn a new product. If he is completely unfamiliar with your products then you will have to give him time to become accustomed to them. We believe, however, that he will do a very good job for you and we should rate him as a "C" — not with potential ability to reach a "B" sales production.

In rating Mr. [redacted] we have used our five point rating scale which has the following approximate values:

- A - Outstanding Performance
- B - Better Than Average
- C - Satisfactory Man
- D - Sub-standard
- E - Very Poor

AMH:ms  
4/18/58

**PROFILE AND GRAPH**  
(left) give quick summary of applicant's abilities and personality.

**WRITTEN ANALYSIS**  
(center) suggests how applicant can strengthen his weak points.

**CONFIDENTIAL REPORT**  
(right) indicates whether or not applicant might make the grade.

ing them all the time in order to really deliver. Or they may be just plain dishonest.

So, how can you tell?

Here's how S. & M. Schwartz does it. For the past four years, the company has been using a combination of personal interview and size-up with a written sales aptitude test and personal analysis questionnaire on each new salesman considered. These tests, which cost \$20 a man, have not only helped in the screening of new applicants, but have underlined the strengths and weaknesses of the men already employed. This has given management a guide to the kind of direction each man needs.

Before Schwartz was completely sold on the value of the tests, he had his entire sales staff take them. He took one himself, under an assumed name.

When the results came back, he found that they jibed closely with his own conclusions about these men who had been working for him for some time. The clincher was the analysis of his own test, Schwartz points out. In straight-from-the-shoulder talk, it said many things about him—good and bad—including many he would never have admitted to anyone but himself.

The complete test package consists of a personal history record, an employment aptitude test, and an attitudes questionnaire. Together they are designed to discover the applicant's general abilities, such as mental adaptability and persuasive powers, and his personal factors, such as his drive (active, optimistic, aggressive, purposeful), his ability to get along with others (cordial, sympathetic, agreeable, responsive), and his degree of control (unbiased, calm, controlled, steady).

A typical test report includes a graph profile of the

applicant's characteristics, a written analysis of these characteristics as they bear on the job he's after, and suggestions as to how the applicant may make the most of his abilities and overcome his shortcomings. This report may be shown to the applicant, if desired.

In addition, a confidential report is enclosed—for the employer's eyes only—giving the analyst's recommendations as to whether or not the man appears suitable for the job.

Occasionally, a man tries to "beat" the test by giving the answers he thinks are wanted, rather than those which he thinks will reveal his weaknesses, Sadler says. This may be for any of several reasons, including fear, pride or dishonesty.

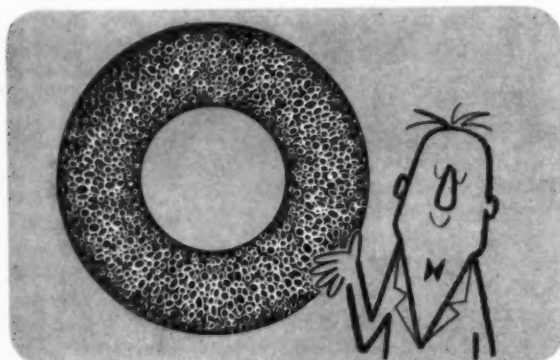
These non-factual answers, however, will trip a man quicker than anything else. Built into the test are questions designed to uncover inconsistent patterns in the answers. When this happens, Sadler gives the man an "Unacceptable Validity Score," recommends that he not be tested further, and makes no charge for the test.

The testing group emphasizes that the tests are just one tool for management to use in hiring. They will not tell anything about a man's job knowledge, how his wife's attitudes will affect his work, his personal appearance, or even how he will get along with his boss. They will tell if he has the makings of a good salesman and if he's basically honest.

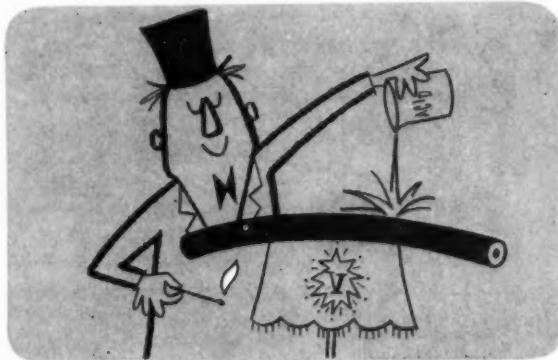
They must be considered in conjunction with a personal interview, experience, references. Then the whole picture must be looked at through the lens of the executive's judgment.

Used this way the tests are indispensable, Schwartz believes. They haven't steered him wrong yet.

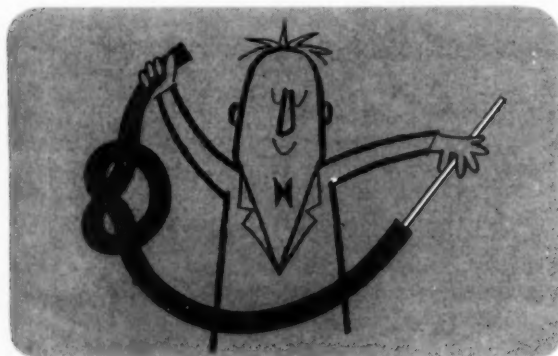
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The new, fast way to stop dripping pipes! The closed-cell structure of Vasco-Cel insulation makes condensation impossible. It also gives practical thermal insulation at temperatures as high as 220°F.



Vasco-Cel insulation gives extra safety, too. Made from self-extinguishing material that will not feed a fire—cannot carry flames along pipes from room to room. It is resistant to acids, oil and fungus.



Soft—so flexible you can tie it in knots—durable, clean and odorless—Vasco-Cel is ideal insulating material. Slips on easily over tube or pipe or can be slit lengthwise and fitted onto pipe already connected. Cement it together permanently with Vasco-Cel Adhesive. ID's from  $\frac{3}{8}$  to  $3\frac{1}{2}$  in. Fabricated in 6-ft. lengths.



Vasco-Cel is the newest in a complete line of insulation products for refrigeration. Get Vasco-Cel, Permagem Slugs & Cords, and Presstite Tape from your nearest "Virginia" wholesaler. For complete information, write Refrigeration Division, VIRGINIA SMELTING COMPANY, 294 Jefferson St., West Norfolk, Va.

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by Arthur H. Farr

## THE HEAT PUMP PRIMER—Part 3

**EDITOR'S NOTE:** Part 1 of this series of articles was published in the March issue of THE REFRIGERATION & AIR-CONDITIONING BUSINESS; Part 2 appeared in May. Succeeding articles will continue to appear every other month until the series is concluded. Watch for them!

ANY DISCUSSION of heat pump applications must be prefaced by a thorough understanding of the economics of a heat pump installation. The economics of heat pumps can be a very complex study. To simplify this subject we shall concentrate on one heat pump concept at a time and limit this article to the air-source heat pump.

Heat pumps using water or earth as a heat sink have a more stable range of capacities and per-

formance, both for heating and cooling. As a result, it is somewhat easier to calculate the economics of a given installation.

By comparison, the air-source heat pump is somewhat unstable. In winter the heating capacity and the overall C.O.P. (coefficient of performance) falls off as the outside temperature drops. In summer the cooling capacity falls off as the outside dry bulb temperature climbs into the range in which higher condensing temperatures

cause a reduction in compressor cooling capacity.

In Part 2 of "The Heat Pump Primer" (published in the May issue) we pointed out that one disadvantage of the air-source heat pump in cold climates is the problem of defrosting. Another drawback is that in these colder regions the air-source heat pump often doesn't make sense from the standpoint of economics.

These are some of the reasons why at least two of the major producers of this type of equipment have de-emphasized their merchandising of air-source heat pumps in the area loosely defined as north of the Mason-Dixon line and east of the Rocky Mountains.

This doesn't mean that these manufacturers have dropped all efforts to sell air-source heat pumps in this area, or that they aren't putting in some installations. But they are realistically expending their greatest merchandising efforts in those areas where weather conditions make the economics of the air-source heat pump most sound — in the southeast, southwest, and along the west coast.

In these areas summer cooling is highly desirable, and so little winter heating is required that the heat pump generally has sufficient capacity to handle the load without the use of supplementary electric resistance heat.

To highlight the problem, let's consider the typical residence shown in Fig. 1. If we locate this home in Tampa, Fla., where the outside design is 95 F for cooling and 30 F for heating, the structure heat gain is 34,490 Btuh

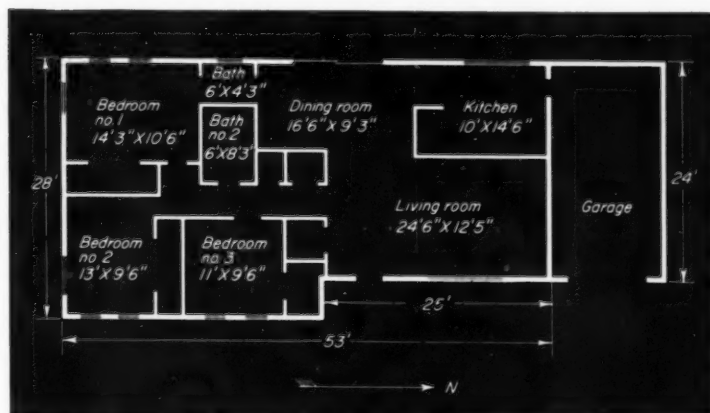


Fig. 1—Residence floor plan

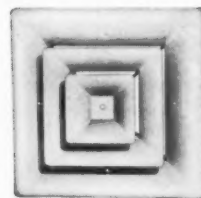
New ranch type—enclosed crawl space with 2" insulation—brick veneer walls with 1" insulation—vented, pitched roof with 4" insulation—single glazed windows, shaded inside—8' ceiling heights—no roof overhang.

Window schedule			
Room	Area	Room	Area
Kitchen	22	Bedroom #2(South)	12
Dining	42	Bedroom #2(East)	24
Living	40	Bedroom #3	24
Bedroom #1(West)	18	Bath	6
Bedroom #1(South)	12		

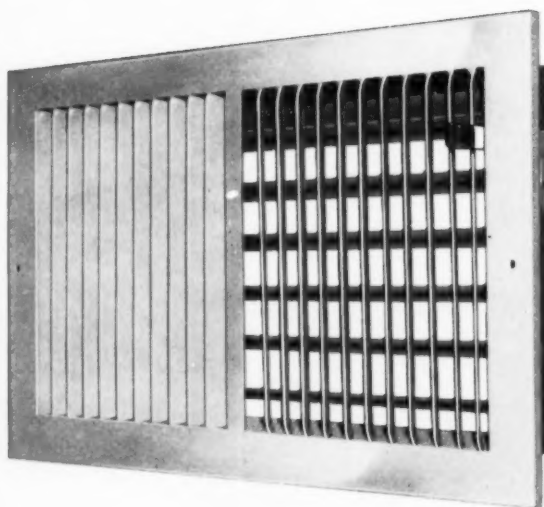
# BIG CAPACITY



**AIR CONTROL'S Big Capacity Ceiling Diffusers** in round or square models, flush, step-down or adjustable types, full range of sizes. Decorator styling and satin beige prime coat. Rattle-free "Sta-Set" butterfly valve dampers for all models.



## IDEAL FOR COOLING



**AIR CONTROL'S New Multi-Louver Registers and Grilles** with massive, one-piece face and stamped fins  $\frac{1}{2}$ " wide for added strength and large free area. Beige prime coat finish. All sizes.

Here is capacity — BIG capacity — for any air conditioning requirement.

For ceiling installation you just can't beat Air Control's smart new *Big Capacity Ceiling Diffusers*. They offer 30% to 50% more free area — save you up to \$4.20 per outlet because they require no adapters or transition piping! Air-flow ring design eliminates air noise, even at high velocity. Broad, contoured outer ring serves as built-in anti-smudge ring at no additional cost.

For other installations, Air Control's new *Multi-Louver Registers* combine large free area with four-way direction control of air pattern. Convenient operator handle adjusts multi-louver valve for as much as 45° downward deflection—any upward deflection. Ideal for year 'round systems. Vertical fins, preset for 30° horizontal deflection from center, are readily adjustable for special requirements. All this, plus strong, massive appearance — at low, low price.

*See your wholesaler soon!*

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# THE HEAT PUMP PRIMER (Continued)

TABLE 1—Residential cooling load.

	Area	Factor	Btuh
1 WINDOWS			
<i>a) solar</i>	88 <sub>west</sub>	65	5,720
<i>b) transmission</i>	200	25	5,000
2 WALLS	870	5	4,350
3 PARTITIONS	192	4	770
4 ROOF	1384	4	5,540
5 FLOOR	1384	—	—
6 OUTSIDE AIR	1384	3	4,150
7 PEOPLE (No.)	5	200	1,000
8 Sub Total			26,530
9 Latent Heat Allowance			7,960
10 Total			34,490

TABLE 2—Residential heating load.

	Area	TAMPA, FLA.		COLUMBUS, OHIO	
		Factors for 90 F Design Outside d.b.	Btuh	Factors for -10 F Design Outside d.b.	Btuh
1 WINDOWS	200	45	9,000	90	18,000
2 WALLS	1062	8	8,500	16	17,000
3 ROOF	1384	3	4,150	6	8,300
4 FLOOR	1384	3	4,150	6	8,300
5 OUTSIDE AIR	185 <sub>cfm</sub>	43	7,950	87	16,100
	TOTAL		33,750	TOTAL	67,700

NOTE: Factors in Table 1 are based on 20 F design d.b. temperature difference (95 F outside design for both Tampa and Columbus; 75 F inside design).

(see Table 1) and the heat loss is 33,750 Btuh (see Table 2).

Now, consider the same residence (Fig. 1) located in Columbus, Ohio, where the outside design is 95 F for cooling and -10 F for heating. The cooling load on the structure is identical to Tampa (Table 1), since the design temperature is the same. The heating load, however, is doubled (Table 2).

The next step is to try to select a heat pump that will maintain comfort conditions in each of these two widely different sample problems, and still remain in balance in the economic equation.

To simplify selection, the structure loads for heating and cooling are summarized in Table 3 and compared to the capacities of two models of self-contained air-to-air heat pumps on the market today. These two heat pumps are both nominal 3-ton machines, but Unit A utilizes a single 3-hp compressor where Unit B utilizes two 1¾ hp compressors.

For the Tampa house, Unit A would meet the cooling requirements, but would be 3150 Btuh short of handling the heating requirements when the outside temperature falls to 30 F. This does

not count duct losses, which, with proper insulation, should not exceed 5% of the total structure loss.

Adding the 3150 Btuh to 5% of the structure loss (1690 Btuh) to compensate for duct loss would make the total deficiency 4480 Btuh. Dividing 4480 Btuh by 3413 (Btu per kw) shows that 1.3 kw of supplemental electric resistance heat would be required.

Unit B would meet both the cooling and heating requirements for the Tampa structure without supplemental heat.

For this same house in Columbus, either Unit A or B will meet the cooling requirements. However, allowing for 5% duct loss,

Unit A would be 54,590 Btuh (16 kw) short of meeting the heating requirement, and Unit B would be 49,090 Btuh (14.4 kw) short.

Under these circumstances a satisfactory power rate (generally below 1½ cents per kwh) would be necessary to justify the installation of a heat pump on the basis of comparative economics.

The economic aspects of heat pump installations will be expanded in Part 4 of this article, which will appear in the September issue. This next installment also will cover the method of forecasting the temperature at which supplementary heat would be required.

TABLE 3—Comparison between structure load and heat pump capacity.

	STRUCTURE LOAD—Btuh		HEAT PUMP CAPACITY—Btuh	
	TAMPA FLA.	COLUMBUS OHIO	Unit A—Nominal 3 ton with (1) 3hp compr.	Unit B—Nominal 3 ton with (2) 1¾-hp compr.
Cooling 95 F Design	34,490	34,490	36,000	38,000
Heating—10 F Design	—	67,700	16,500	22,000
30 F Design	33,750	—	30,600	34,500

# NEW HEALTH CODE SAFETY CONTROL

*for coin vending machines  
dispensing cold or hot items*

## RANCO F11

Recent changes in U. S. Sanitation Ordinance and Code suggest that vending machines with storage compartments for readily perishable food and beverage items be equipped with controls to insure maintenance of temperature *not higher than 50° F.* (cold items) nor lower than 150° F. (hot items). Only exception is a 30-minute recovery period following loading or servicing, after which time the system must have returned and be in normal temperature operation.

Ranco has developed two controls (F11-1000 for cold vending and F11-1200 for hot vending) which automatically prevent machines from vending food or beverages at unsatisfactory temperatures. They are in addition to, and do not interfere with, the regular cycling thermostat required in the machine.

### PRESCRIBED SAFETY VALUES

**F11-1000 (cold vending):** prevents mechanism from dispensing when refrigerated compartment temperature rises to 50° F. or above.

**F11-1200 (hot vending):** prevents mechanism from dispensing when heated compartment temperature drops to 150° F. or below.

**30-MINUTE RECOVERY PERIOD:** Both controls have a 34 (±4)-minute time range, non-adjustable.

### OPERATION OF THE CONTROL

The F11 Control is a semi-automatic type with manual reset mechanism responding to temperature change and is equipped with a mechanical, spring-wound timer as a component.

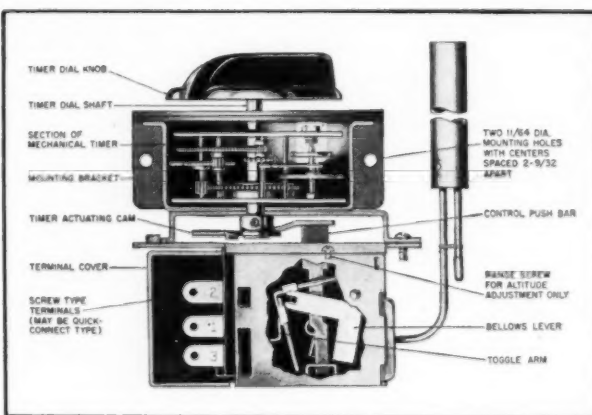
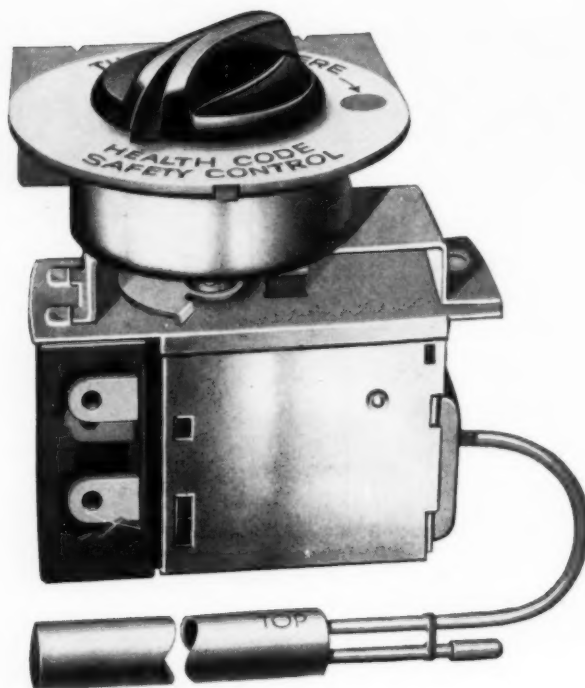
**AUTOMATIC FEATURE** of the control prevents coin mechanism from dispensing items when temperature of the compartment reaches the prescribed safety setting.

**MANUAL FUNCTION** is through the mechanical timer (not made by Ranco). Dial knob must be turned to an indicated stop to start the timer after loading or servicing. An actuating cam-push bar mechanism closes the contacts circuited to the machine so it will continue to dispense through the fixed 34-minute recovery period. If the system does **not** recover to normal operating temperature, the push bar unlatches to prevent dispensing. If the system recovers, the push bar remains latched and dispensing continues.

**ALTITUDE ADJUSTMENT:** correction provided for elevations to 8000 feet.

**ELECTRICAL RATINGS:** (Listed with UL and Canadian Standards Association) 115 volts a.c. non-inductive, 2000 watts, 7.4 amps. full load, 45 amps. locked rotor. 230 volts a.c. non-inductive, 1000 watts, 3.7 amps. full load, 23 amps. locked rotor.

Special modifications are available to meet your product needs through your Ranco distributor.



*See your Ranco Distributor or write direct for complete, detailed Bulletin 1726 with wiring diagrams, technical data on F11 Series controls.*

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*More than 100 million Ranco Controls now in use*

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THE REFRIGERATION & AIR-CONDITIONING

### Keep the Oil Where It Belongs (PART 2)

by James W. Archibald, sales manager, Temprite Products Corp.

AN OIL SEPARATOR depends for its operation on the reduction of gas velocity in the superheated state, so care should be taken to prevent loss of superheat.

For example, when an oil separator is applied to an air cooled condensing unit it should not be located where it will be influenced by air from the condenser fan. Passage of this air over the oil separator would tend to condense the refrigerant in the separator. When accumulated, this liquid refrigerant would be returned to the crankcase, exaggerating the oil pumping condition.

When condensing units are connected in parallel it is even tougher to keep the oil where it belongs. This type of compressor arrangement often is used to provide the flexibility needed to handle variable load conditions. In such applications there is a great tendency toward an unbalanced pressure condition between crankcases. The piping arrangement must be carefully planned to prevent this, because the slightest difference in pressure between paralleled crankcases will result in considerable difference in oil level.

In applications of this type (Fig. 5) all connected compressors should be mounted on the same level. Each compressor should be provided with an oil separator. The crankcases should be inter-connected at the normal oil level and above.

Crankcase pressure equalizer lines must be large enough to provide immediate pressure equalization. These lines should be run

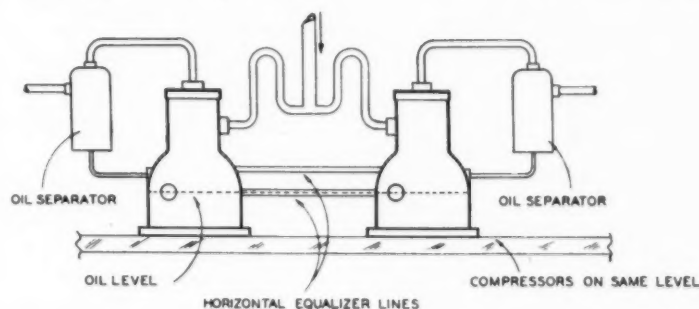
horizontally, for it has been proven that any vertical rise in the equalizer lines creates a pressure difference and an unbalanced condition of common oil level.

The extremely low temperature requirements of many modern commercial and industrial refrigeration applications has resulted

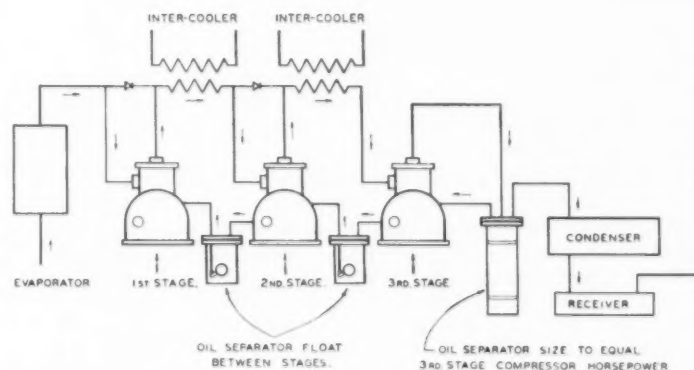
in the growing use of multi-stage refrigeration systems.

The limitations of compression ratio established by the compressor manufacturer provide the basis for determining the selection of single-stage, two-stage, or three-stage compression. A maximum com-

*Continued on next page*



**FIG. 5**—When condensing units are connected in parallel, provide an oil separator for each compressor. Plan piping carefully to maintain equal pressure between crankcases, so that oil level will be the same in each.



**FIG. 6**—In multi-stage applications, use small oil separators as float valves between stages to maintain the pressure difference between crankcases. Then install an oil separator sized to equal third stage compressor horsepower in the discharge line to the crankcase of the high-stage machine.



**A LOAD OF LENSES** goes into the zero F refrigerator used by American Optical Co. to facilitate processing of lenses for bifocal glasses. Lenses are stored 7 days.

## Zero Storage Cuts Lens Rejects

REFRIGERATION HAS PROVIDED THE ANSWER to a problem that has plagued the optical industry for years: the imperfect fusing of a bifocal lens due to moisture action on its surface.

These lenses are made by heat fusing a button, or segment, of glass to a glass lens having a different index of refraction. After fusing, the lens is ground so that the small segment becomes the reading or close vision portion of the lens, while the balance is used for distance seeing.

After long research, American Optical Co. glass specialists developed a patented method of using refrigeration to reduce surface moisture. Basically, the process is amazingly simple. The lenses are meticulously washed and then cooled to zero degrees F. They are maintained at this constant temperature for seven days.

At the end of this cold storage period, the lenses are removed and immediately dipped in water at room temperature for one to two minutes. This raises their temperature above the dew-point of the surrounding atmosphere, and prevents them from picking up moisture from the air.

Such moisture is distilled and would cause the formation of a hydrated silicate film. A film of this nature causes inter-facial bubbles during the fusing process, resulting in a high reject rate of the finished bifocal lenses.

The dipping also performs the function of temporarily contaminating the surface of the dehydrated lens with foreign ions, thus retarding the rapid hydration reaction which ordinarily occurs between a clean glass surface and pure water.

This treatment of the lens surface makes possible the perfect fusion required to meet the highest optical standards.

After finding the answer to this fusing problem, the next step was to construct at the company's headquarters in Southbridge, Mass., a refrigerator large enough to handle AO's tremendous daily production. The installation was made on the fourth floor of its largest lens manufacturing building. The walk-in unit measures 60' long, 60' wide, and 9' high, with a capacity of about 32,000 cu. ft.

Cooling is provided by three compressors, each operating two sets of coils. Defrosting of the coils is accomplished in 20-minute cycles, with one compressor being off, while the other two maintain the constant zero temperature.

*Continued from preceding page*

pression ratio of 10 to 1 is considered good practice.

Multi-stage compression involves the use of compressors in series. The discharge of the low-stage compressor serves as the suction of the intermediate or high-stage compressor. The oil entrained with the discharge gas is carried over to the second and third-stage compressors.

In multi-stage applications (Fig. 6) it is desirable to maintain a pressure difference between crankcases, so crankcase equalizing is impractical. For this reason it is advisable to provide a float-actuated valve between crankcases to maintain the pressure difference. A small oil separator will serve this purpose adequately, since it is provided with a float-actuated valve.

These small oil separators, functioning as float-actuated valves, also serve to provide oil return to the crankcases of the low and intermediate-stage compressors. As the oil in the high-stage compressor rises above the normal oil level, it flows by gravity into the float valve. When enough oil has accumulated to provide buoyancy for the float and open the valve, the pressure difference conveys the oil to the lower stage compressor.

Piping arrangement of a three-stage refrigerating system, with particular emphasis on oil separator application, is illustrated in Fig. 6. Note that an oil separator is provided in the discharge line to the crankcase of the high-stage machine.

*Editor's note: This concludes this two-part discussion of oil separators and their application. Part I was published in the Here's How section of last month's issue.*

## RECORD OUTLET EXPANDS

Charles W. Hanson, manufacturers representative for Recold Corp. refrigeration and air-conditioning products in Florida, has been joined by Ralph H. Stebbings to form Hanson & Stebbings Co. The new company's office is in Miami.



# Seeing is believing with the Sporlan *See•All*

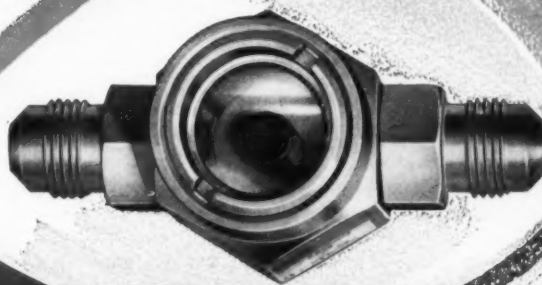
A Single Green Dot  
indicates when  
the system is DRY...  
a Full-view Sight Glass  
shows if the system  
is Fully Charged!

**Seeing is believing!** When the indicator is green...system is dry...no worries. When yellow...system too wet...danger ahead, immediate action necessary. When chartreuse...the caution range or warning signal...change drier before serious trouble develops. These color changes are supported by accurate calibrated data giving the moisture content in PPM at various liquid line temperatures. The color change is completely reversible, and changes as the moisture content of the system varies.

The See•All may be installed anywhere in the liquid line... for convenient visual inspection... and for liquid lines larger than 3/8", a new by-pass kit is now available. Same accurate moisture and liquid indication readings... eliminates added cost of sightglass or indicator of full line size.

The single dot indicator of the *See•All* works equally well on Refrigerants 12-22-40-500.

....the amazing single dot moisture and liquid indicator that takes the guess work out of servicing refrigeration equipment



Order See•Alls from your Sporlan Wholesaler today... and believe what you see ... avoid the possibility of moisture problems.

Further... add Catch-Alls to the order for perfectly clean, dry, acid free refrigeration and air conditioning systems.

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## Executive Development Key to Growth in Competitive Market, NCRSA Members Told

"Organize for growth or stagnate and die." This is the warning of Milton I. Schwartz, first vice president, to his fellow members of the National Commercial Refrigerator Sales Association.

Commenting on today's competitive market, Schwartz said that proper organization in a company provides for effective and balanced performance of all work that must be done to carry out the plans of management.

"The right kind of organization," he said, "will stimulate initiative and creative effort by requiring managers at all levels to make decisions and broaden their range and capacity.

"Organization makes growth and expansion easier. Some firms grow in a series of disruptions, often upsetting personnel and the existing organization. Organizational planning will eliminate many of these disturbing factors.

"Every company starts out with a functional organizational structure because this is a simple, direct, and economical way to organize. Sooner or later, however, the enterprise outgrows this type of structure. As the organization grows, it can increase only by adding more layers to the pyramid that goes to make up each function.

"The first check list for change should be:

1. Delegate authority.
2. Build controls.
3. Develop managers.
4. Give it time.

"The most important asset that a company can have," according to Schwartz, "is a good chief executive officer. The greatest liability is a poor one. To achieve any goal requires paying some price, so it would be unrealistic to design

a plan which required a price higher than the chief executive officer is willing to pay.

"An executive nearing retirement may not be willing to do things that a younger man would do. Some executives are willing to risk delegating substantial authority while others are more cautious. Others are willing to take steps that are contrary to the personal interests of their closest friends if the best interest of the organization would be served. Others have such deep loyalty to their friends that they can't act critically towards these people even when it would be best for business. This is most dangerous.

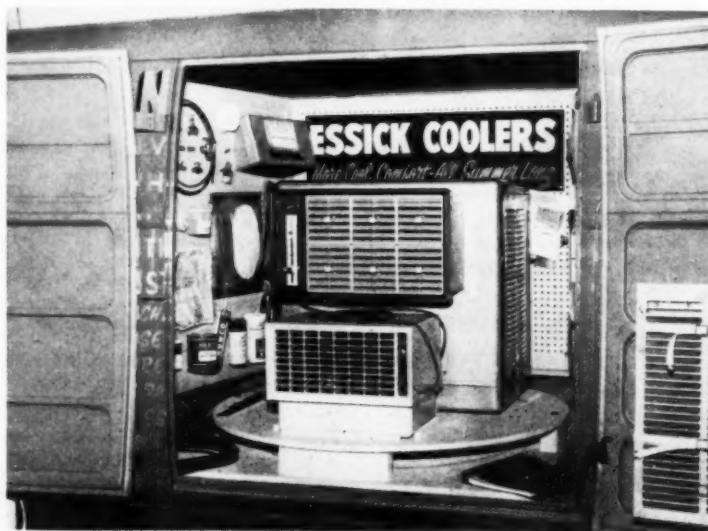
"It is essential that the top man

understands and be ready to do all that's necessary to make a plan successful. If he does not carry out his part, resistance down the line will increase. When this happens it might have been better never to have adopted such a plan. In making a reorganizational change it is necessary to answer these questions:

1. How much change must a good executive make?
2. Is he adaptable?
3. Will he set a good example?
4. Does he really understand and feel strongly about the new approach, or does he recognize the need for change intellectually without much disposition to pay a price personally to make it work?
5. Is he an effective administrator, or does his ability lie in other directions?
6. Will he enforce organization discipline?
7. Does he have the ability to communicate concepts and ideas?
8. Is he skillful at guiding subordinates?
9. Does he have the loyalty and confidence of the organization?
10. If he lacks the skills and interest to do certain parts of this

*Continued on page 67*

### SALES DISPLAY AT A PARKING METER



**WHAT THE CUSTOMER SEES** from the back of a Volkswagen display unit is an air-conditioning system which can be operated for on-the-spot demonstration. The system is mounted on a turntable at the center of the display which allows the customer to view the product from all sides. Four of these Volkswagen units are now being used by Ashburn Supply Co., Culver City, Calif. Each carries a completely different display. Three panels show small items as a reminder to dealers of the products distributed.

**Taking the industry by storm!**

# **Council ICEMAKER-DRINKMAKER® COMBINATION**

**Council's Distributor Plan includes  
a proven merchandising program**

You, as a Council distributor, have a complete ICEMAKER and DRINKMAKER merchandising program, plus all the advertising and direct mail you normally expect from a well rounded program. The "free syrup offer" which appears below is a real sales clincher for the ICEMAKER-DRINKMAKER Combination. Your dealers and customers will go for this amazing profit opportunity!



## **Special FREE Syrup Offer helps you Sell Dealers and Their Customers**

With each ICEMAKER-DRINKMAKER Combination, Council will ship to your customer eight gallons of syrup concentrate (root beer and/or fruit flavors). When mixed with sugar, it makes enough fountain syrup for 32,768 six-ounce drinks. At 10c each, your customer grosses \$3,276.80, plus the saving on the cost of ice, which is automatically made by the Council ICEMAKER... world's most dependable ice making principle.

## **MAIL THIS COUPON**

*for the complete distributor story on  
Council ICEMAKERS  
and DRINKMAKERS*

**COUNCIL MANUFACTURING CORPORATION**

**Since 1946**

**418 North 2nd Fort Smith, Arkansas**



\*Drinkmaker is a registered trademark

ICE and 3 DRINKS (carbonated or plain water in any combination) plus a fizzer, from this one compact machine. Drinkmaker equipped with pressure system. And you'll be amazed at the Council "SEE-SAW" Ice Harvest, that works on a balanced freezer plate principle.

Available in models of 350 lbs. and up, and with 3-flavor drink faucet plus island-type dispenser head.

MAIL TO / **COUNCIL MANUFACTURING CORPORATION**  
418 North 2nd Fort Smith, Arkansas

Send complete information about the distributor plan on the Council ICEMAKER and DRINKMAKER line.

NAME \_\_\_\_\_

FIRM NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

A ROOM  
A HOME  
A STORE  
A SUITE  
A FLOOR  
A BUILDING

## THERE'S A CARRIER HEAT PUMP FOR ANYTHING!

From a single room to a multi-story building, Carrier offers a heat pump unit or system to do any residential or commercial job in any climate.

The Carrier residential line spans the field from a 1/2-ton Portable to a 4.7-ton two-piece model. There are seven sizes to air condition any residence from a one-room apartment to a twenty-room mansion.

The Carrier commercial line offers Heat Pump Weather-makers\* for any structure from a small retail shop to a large office building or factory. The seven smaller sizes from 7.5 tons to 27 tons will handle the majority of situations. And for really big jobs, there are Heat Pump Weathermaker Systems—combinations of components factory-tailored to meet requirements.

Carrier dealers are listed in the Yellow Pages of the phone book. They will be glad to furnish specific information about all Carrier units. Or write Carrier Corporation, Syracuse 1, New York.

\* Reg. U. S. Pat. Off.

BETTER AIR CONDITIONING FOR EVERYBODY



EVERYWHERE

Circle No. 41 on Reader Service Card

THE REFRIGERATION & AIR-CONDITIONING



job himself, is he willing to delegate these and back up the executives to whom they are assigned?

11. Is a suitable executive available?

"Equally important, the planners must get the commitment of the chief to do the things needed to get the plan launched successfully. If he has to make speeches to management or administrative strong interest in support of training programs, or handle staff meetings in certain ways, or apply disciplinary measures to those who fail to cooperate, these things should be spelled out and his commitment obtained in advance. If this strong support is not obtained, people down the line will say, 'If he isn't interested, why should we be?'"

#### **Adaptability is Important**

"You also must consider the capacities and limitations of other key personnel and the impact of the change on them. It is important to ask:

1. What kind of ability, skills, and judgment are required that the old plan did not need?
2. How hard will this be to get?
3. Do present executives have the intelligence, breadth, attitude, and maturity to develop them quickly enough?
4. How serious would the consequences of poor performance or failure be?
5. Can these be guarded against?
6. Can the transition from the old to the new plan be so phased as to minimize the risks of breakdown?

"The planners must also consider how these changes will affect the status, prestige, and career ambitions of key executives. Will it expose poor performance they have been camouflaging? Are there rivalries, cliques, and power politics in the management group? How will these be affected? Is the new approach adapted to the way key members of management operate best? Sometimes the plan must be modified to deal with the human factor."

Schwartz concludes by saying, "There is no time like the present to reorganize with growth in mind."



*Bohn Half-Rounds keep fruits and vegetables temptingly fresh and crisp for Piggly Wiggly customers by maintaining precise control of temperature and humidity in produce coolers.*

## **At Piggly Wiggly... another installation of "ORIGINAL HALF-ROUND" BOHN EVAPORATORS**

### **Features of the Bohn Model HR**

- Built-in louvers... a Bohn exclusive... increase air "throw" to provide more uniform temperature in refrigerated space.
- Guaranteed full-rated performance; UL listed.
- 7 models, capacities from 260 to 1080 BTU's at 1° T.D.
- Grained aluminum housing; rust-proof fittings, built-in heat exchanger, chrome-plated fan guard with optional plastic filter.
- Double drain pan prevents sweating; hinged for easy access.
- Life-lubricated motor with thermal overload protection.

SEE YOUR WHOLESALER for latest catalogs and price lists on BOHN's complete line of standard unit coolers, low temperature units, and air-cooled condensers.

*Bohn is proud that its Half-Rounds were selected for this ultra-modern new Piggly Wiggly store at 823 E. Murdock Avenue, Oshkosh, Wisconsin. Owner and operator is Mr. Cliff Sebor.*



# **BOHN**

**Buy the known line... the BOHN line**

**Aluminum and Brass Corporation**

Betz Division • Danville, Illinois

# TWO BIG REASONS WHY . . .

## LA CROSSE MEANS FASTER, EASIER SALES FOR YOU!

### 1. NEW LA CROSSE BOTTLE COOLER

UP TO 45% . . . 45% . . . 45% GREATER CAPACITY

Only La Crosse's "years ahead" engineering could create the increased capacity of the new La Crosse Bottle Coolers . . . and maintain the extra quality and economy that has made La Crosse the leader. The 6' 6" model, with coil only, holds 40 cases . . . other models from 4' 6" to 10' 6" hold from 26 cases to 66 cases! Get more capacity for every dollar . . . sell La Crosse Bottle Coolers.



### 2. THE NEW FLAKE KING

It's new . . . all new . . . the Flake King joins the complete line from La Crosse! Here's top La Crosse quality . . . trim, clean lines . . . dependable, economical operation . . . all the "built-in extras" you expect in La Crosse equipment.

- ★ 550 lb. of hard dry ice every 24 hours
- ★ 280 lb. and 470 lb. storage capacities
- ★ Fully automatic . . . easily installed
- ★ Smooth, silent, dependable operation
- ★ Top quality — Economically priced

The new La Crosse Flake King is attractively finished in gray hammertone baked enamel, large, well insulated stainless steel storage bin at convenient working height, slide away doors, uses a minimum of floor space and is down right "stingy" in water usage.



GET ON THE WINNING TEAM . . . SELL LA CROSSE!

## LA CROSSE COOLER COMPANY

FACTORY & GENERAL OFFICE, 3002 LOSEY BLVD., LA CROSSE, WIS.

EXPORT OFFICE: 60 E. 42nd St., New York, Cable: Expedito

Circle No. 43 on Reader Service Card

THE REFRIGERATION & AIR-CONDITIONING

## USEFUL Literature

**IF YOU'RE INTERESTED** in low temperature pipe insulation you will want to read a 12-page brochure on Styrofoam pipe and vessel covering applications. Published by Dow Chemical Co., it presents a variety of engineering data, recommended application techniques, and charts on recommended thicknesses and heat gain.

Circle No. 106 on Reader Service Card

**A NEW PRODUCT CATALOG** (J 7383) published by Wolverine Tube, Div. of Calumet & Hecla, Inc., lists sizes, alloys, heat, transfer data, and application data for integrally finned tube for heat transfer applications. The 24-page booklet lists seven types of integral finned tube in catalog form and includes information which must be specified when ordering the material.

Circle No. 107 on Reader Service Card

**WHAT IS HIGH VELOCITY** is just one of many questions answered in a comprehensive data file published by Barber-Colman Co. The 52-page catalog (F-6598-1) embraces such subjects as: What can high velocity do and where should it be used, duct design, duct construction, and temperature control for high velocity systems.

Circle No. 108 on Reader Service Card

**ALL YOU NEED TO KNOW** about selecting a motor from 1 to 200 hp is included in a motor selector booklet (B-2103-4) published by Reliance Electric and Engineering Co. Gives brief explanations of NEMA design classes, speed-frequency relationship, current and torque values, and frame selection tables and dimensions.

Circle No. 109 on Reader Service Card

**HOW TO STACK AIR-CONDITIONERS** is told in literature published by Lennox Industries Inc. Described is the many build-up possibilities and applications of the company's air-conditioners, furnaces and heat pumps. Illustrations show the comparison between components and design features of Lennox and other types of equipment.

Circle No. 110 on Reader Service Card

**IF YOU SELL, INSTALL, OR MAINTAIN** motor controls you will be interested in condensed motor controls Catalog No. 14 published by Arrow-Hart & Hegeman Electric Co. The 80-page catalog gives complete size, weight and rating information on the company's line of motor controls and accessories. Illustrated with product pictures, wiring diagrams and dimensional drawings.

Circle No. 111 on Reader Service Card

**A GENERAL DESCRIPTION** of new ac and dc type meter relays is given in a leaflet published by Simpson Electric Co. Lists features and specifications for both 2 and 3" relays.

Circle No. 112 on Reader Service Card

**A HIGH VELOCITY AIR VALVE** that operates without motors or linkage mechanism is described in a bulletin published by Connor Engineering Corp. Lists features of "Pneumafoil" and "Manufoil" valves. Complete with series of isometric and installation drawings, and tabular material including dimensional data and high air capacities for sixteen basic sizes.

Circle No. 113 on Reader Service Card

**A NEW GUIDE** for the proper use of capillaries has been prepared by Sealed Unit Parts Co., Inc. The guide takes in proper sizes for static condenser freezers in 1/4 and 1/2 hp.

Circle No. 114 on Reader Service Card

(More Useful Literature on page 70)



NOW... FINISH YOUR SEALING  
AND CAULKING JOBS FASTER,  
BETTER, MORE ECONOMICALLY  
THAN EVER BEFORE!

use

### Mortite Caulking Cord Mortite Caulking Gum

sturdily packaged in  
handy "tool-kit" size



Lower cost Mortite White Caulking Cord contains three 16-foot rolls, fits any tool kit; 3/8" rope-like cords stay permanently pliable.

Lower cost Mortite White Caulking Gum hand molds into beads, wads, gaskets... any shape. Comes in solid one pound slug.

These two sealers, designed by refrigeration servicemen, are perfect for 1001 different jobs:

- Sealing windows, extension wings and openings around window air conditioners
- Sealing breaker strips and joints in air ducts
- Sealing latch and hinge plates, tube entries and cabinet bases

Mail coupon for full information

**JW Mortell**  
COMPANY

Makers of Famous NoDrip Tape and Mortite

**J. W. Mortell Co.**  
553 Burch St., Kankakee, Ill.

O.K. I Send me full information about the complete line of Mortell refrigeration products.

I'm a ☐ Jobber ☐ Dealer ☐ Serviceman

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CITY \_\_\_\_\_ STATE \_\_\_\_\_

Circle No. 44 on Reader Service Card

Circle No. 45 on Reader Service Card  
 You can't "jail" rust and scale...



But you can stop them with

## MICROMET® PLATES

Easy-to-use, low in cost, one charge of Micromet Plates will protect most systems against scale and corrosion for six months. Recommended by leading equipment manufacturers. Get effective, inexpensive Micromet Plates from your Refrigeration Wholesaler today.

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DIVISION OF HAGAN CHEMICALS & CONTROLS, INC.

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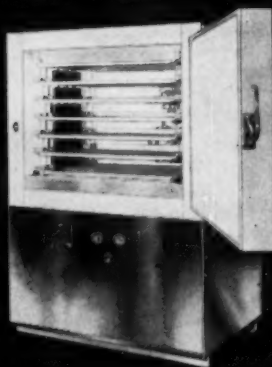


## NEW! COMPACT, SELF-CONTAINED DOUBLE CONTACT FOOD FREEZER!

**DOLE**  
*Freeze-Cel*

MODEL 2735-6

THE ANSWER  
 FOR THE SMALLER  
 OPERATION



6-Station unit: 240—5" x 4¼" packages per freeze... all refrigeration and hydraulic equipment self-contained... uses R22 refrigerant... only 17 sq. ft. of floor space required... patented DOLE "Thermo-Film" feature increases freezing speed up to 10%... installation requires only electrical, water and drain connections.



### DOLE REFRIGERATING COMPANY

594 NORTH PULASKI ROAD, CHICAGO 46, ILL.  
 103 PARK AVENUE, NEW YORK 17, N. Y.

Canada: Dole Refrigerating Products Limited, Oakville, Ont.

Circle No. 46 on Reader Service Card

## USEFUL LITERATURE

*Continued from page 69*

**19 ADVANTAGES** of using "In-Wall" room air-conditioners are listed in a folder prepared by I. W. Air Conditioning Corp. Lists complete specifications, and dimensions as well as sales features.

Circle No. 115 on Reader Service Card

**MANY USES FOR FLEXIBLE PIPE** are listed in Bulletin No. FP-4, published by American Metal Hose Div., American Brass Co. In addition to showing photographs of various installations, charts and drawings are used to show specifications and dimensions. Also includes installation and selection aids.

Circle No. 116 on Reader Service Card

**WANT TO STOP SMOKING?** Read Bulletin 553 which describes a unit designed to guard against smoke circulated by air-conditioning systems. Published by Photomation, Inc., the bulletin describes method of stopping circulating fans and giving alarm in case of smoke from any source.

Circle No. 117 on Reader Service Card

**IF YOU EXPECT TO SELL HEATING** you will be interested in Bulletin 259-A released by Modine Mfg. Co. Lists features and photographs of the company's line of wall-to-wall convectors as used in schools, churches, commercial, public, and institutional buildings. Also gives complete specifications, dimensions, and selection data.

Circle No. 118 on Reader Service Card

**SERVICEMEN AND WHOLESALERS** should be interested in Catalog No. 21 published by Watsco, Inc. The new 1959 catalog lists many new refrigeration and air-conditioning products developed during the past year by the company's engineers. It is compactly arranged to fit all types of binders.

Circle No. 119 on Reader Service Card

**ALTITUDES OF 200,000' AND HIGHER** can be simulated in altitude walk-in rooms described in Catalog No. 59 published by American Research Corp. The catalog covers the company's line of environmental test chambers for testing under conditions of altitude, temperature, humidity, sand, and dust.

Circle No. 120 on Reader Service Card

**LIQUID NITROGEN REFRIGERATORS** are the subject of a six page folder (F-1262) published by Linde Co., Div. of Union Carbide Corp. Contains information on design features as well as performance data and illustrations of the four types of refrigerators now available.

Circle No. 121 on Reader Service Card

**GREATER BOTTLE CAPACITY** is promised readers of a folder published by La Crosse Cooler Co. Photographs show the company's redesigned line of dry storage bottle coolers which increase capacity anywhere from 6 to 18 cases. Describes sales features, and gives specifications and dimensions.

Circle No. 122 on Reader Service Card

**12 QUESTIONS AND ANSWERS** indicate how the cost of operating an air-conditioning system can be minimized if due consideration is given to the part played by water in the functioning of such a system. Published by Water Service Laboratories, Inc., the questions and answers include common operating troubles traceable to water in air-conditioning and refrigerating systems.

Circle No. 123 on Reader Service Card

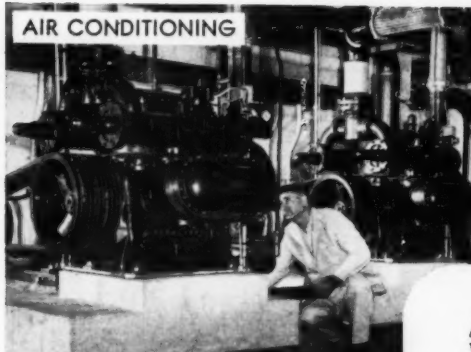
**IF YOU USE STEAM SPECIALITIES** you'll want to read the new 12-page bulletin (203) prepared by Illinois Engineering Div., American Air Filter Co., Inc. Discusses and illustrates the company's major line of valves, thermostatic traps, float and thermostatic traps, steam traps and pipe line strainers. Outstanding features, construction, and operation are fully explained. Also lists dimensions, capacities, patterns, weights and accessories.

Circle No. 124 on Reader Service Card

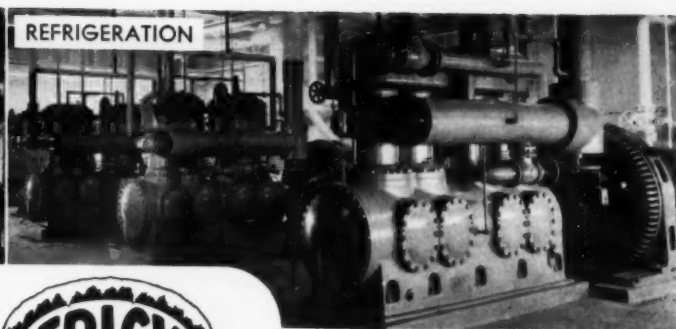
THE REFRIGERATION & AIR-CONDITIONING



AIR CONDITIONING



REFRIGERATION



FISH TERMINAL



FROZEN STORAGE



## Refrigeration & Air Conditioning

The standard of the world for dependability and economy. Back of Frick equipment are more than 50 years' experience in air conditioning, 75 in refrigeration, and 100 in engineering. Whatever your special needs for commercial or industrial cooling, there's a Frick-engineered system to meet them. Branches and Distributors the world over.

Get literature and estimates now; write

**FRICK CO.**  
DEPENDABLE REFRIGERATION SINCE 1887  
WAYNESBORO, PENNA., U.S.A.

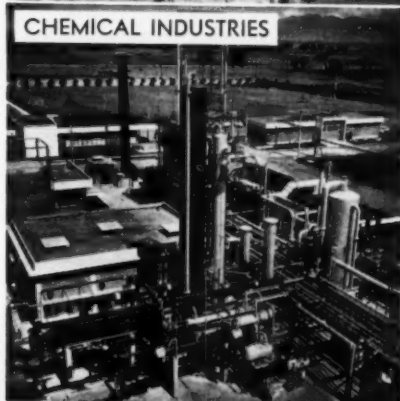
SHELL-ICE



QUICK FREEZING



CHEMICAL INDUSTRIES



BLOCK ICE



COLD STORAGE



**Temperature Regulator**

**Product:** New temperature regulator.

**Manufacturer:** Barber-Colman Co., Rockford, Ill.

**Features:** For proportional control of water, gas or low pressure steam. Designed for applications where a self-contained valve assembly may be suited. Includes calibrated adjusting dial for precise temperature control, electric industrial motor operator, and armored capillary tubing. No assembly, linkage, or adjustment necessary before or after installation except for setting of control to desired temperature.



bly may be suited. Includes calibrated adjusting dial for precise temperature control, electric industrial motor operator, and armored capillary tubing. No assembly, linkage, or adjustment necessary before or after installation except for setting of control to desired temperature.

Circle No. 151 on Reader Service Card

**Ice Vendor and Maker**

**Product:** "Scot-O-Mat" coin-operated ice vendor that makes and bags its own ice.

**Manufacturer:** Scotsman, Queen Products Div., King-Seeley Corp., Albert Lea, Minn.

**Features:** Designed for outdoor use wherever automatically dispensed, bagged ice would be purchased by the public. Will make and dispense either cubed or crushed ice, or both, either bagged or in bulk. Up to four self-contained Scotsman



automatic ice machines can be housed in the top section. As ice is made, it is gravity fed to refrigerated lower two sections. Middle section holds bagging, dispensing and coin mechanisms, bottom section includes ice storage area. Divider separates bulk and bagged ice storage sections so that types of ice do not mix. Three refrigerated storage compartments—one for bulk ice and two for bagged ice.

Circle No. 152 on Reader Service Card

**Winter Air-conditioner**

**Product:** Gas or oil fired winter air-conditioners (Model numbers 105-1, 202-1).

**Manufacturer:** Mueller Climate Control, Div. of Worthington Corp., Milwaukee, Wisc.

**Features:** Electronic air cleaner built in as an integral part of blower compartment. Filter pads are cleanable and easily replaced. A red light on the thermostat indicates when filters need cleaning or replacing.



Variable input gas valve makes continuous air circulation easy. Outside control varies input of gas according to temperature. Variable air flow blower adjusts in accordance with varying gas input. Summer cooling is available with original installation, or it may be added at any time.

Circle No. 153 on Reader Service Card

**Combination Tool**

**Product:** Combination hex wrench and Phillips type screwdriver set.

**Manufacturer:** Watsco, Inc., Hialeah, Fla.

**Features:** Designed to allow the user to reach any remote set screw. Set incorporates seven 9" hex wrenches in popular sizes and three Phillips type screwdriver tips, #1, #2, and #3. Sliding hex adapter is included as part of each wrench. Standard refrigeration ratchet wrench or any 1/2" wrench may be

fitted on the adapter to tighten or loosen the screw. Also enables user to keep as close to the work as is desirable. Screwdriver tips may be snapped on one end of the 1/4" hex wrench. Plastic knob fits on the opposite end of the wrench for easier operation. Packaged in heavy duty plastic pouch.

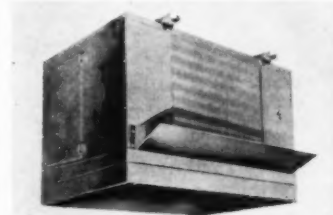
Circle No. 154 on Reader Service Card

**Unit Coolers**

**Product:** "Hot Shot" automatic electric defrost unit coolers.

**Manufacturer:** Drayer-Hanson Div., National-U.S. Radiator Corp., Los Angeles, Calif.

**Features:** Redesigned line includes 14 ceiling suspended models;



7 for Freon; and 7 for ammonia. Both range from 4750 thru 25,000 Btu/hr capacity at 10 F T.D. Applicable to industries where completely automatic defrosting in low temperature applications must be quick and attention-free. Used in such applications as frozen-food processing and storage, ice cream hardening rooms, and locker plants. Rust-proof aluminum housing with silver hammertone finish.

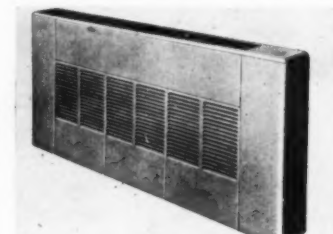
Circle No. 155 on Reader Service Card

**Inductor Units**

**Product:** Line of low pressure inductor air-conditioners.

**Manufacturer:** American Standard Industrial Div., Detroit, Michigan.

**Features:** For application to perimeter areas of multi-room buildings using conventional ductwork. Provides heating, humidification, cooling and dehumidification for perimeter areas of office buildings, laboratories and other multi-room structures. Available in five unit sizes: 20, 28, 36, 48 and 60. Numbers designate tube length of secondary coil in inches. Up to 700 cfm of fresh air can be supplied by each inductor. Individual room control of primary air



Where high  
humidity is needed . . .

THE  
**LARKIN**  
BAFFLE COOLER COIL

Is ideal for Walk-In Coolers, Florist Boxes,  
Produce Boxes, Packing Rooms, Etc.

In refrigerators where a high humidity is necessary, it will pay you to install the Larkin Baffle Cooler Coil. By handling a large volume of air and cooling it slightly each time it passes through the coil, it is possible to maintain a higher humidity. Louvers are engineered to provide correct circulation of air and accelerate its flow. Air constantly swirls around stored products, providing proper refrigeration and humidity.

The Larkin Baffle Cooler Coil is durably constructed and is a complete unit. It consists of an aluminum cross-fin coil, double louvered baffle with drain pan, and hangers.



See your wholesaler or write for Bulletin 1057

**LARKIN COILS** INC.  
519 MEMORIAL DRIVE, S.E., ATLANTA, GEORGIA

**OUTSTANDING FEATURES**

- Patented Larkin Cross-Fin coil with aluminum fins and staggered copper tubes mechanically expanded (aluminum tubes available for ammonia refrigerant)
- Baffles are constructed of heavy-gauge, polished aluminum
- Adjustable baffles easily removed for inspection and cleaning
- Coil and baffle hangers are heavy-gauge die-stamped aluminum channel punched with keyslots for easy attachment
- Matched baffles for left and right sides furnished if specified
- Special-sized baffle cooler coils are also available

is provided by standard indexing and locking device for fixing unit volume. Can be manually operated if desired. Secondary coil, either hot water or steam, can be controlled manually.

Circle No. 156 on Reader Service Card

#### Ice Maker

**Product:** "Chipmaster" re-designed ice making machine.

**Manufacturer:** Carrier Corp., Syracuse, N.Y.

**Features:** Machine will turn out 445 lbs. of ice per day under extreme conditions of 105 F condenser

water and standing in a space as hot as 110 F. Under normal conditions of 70 F condenser water supply and 90 F air, the water-cooled model delivers 675 lbs. of ice. Air-cooled models produce 575 lbs. Green finish blends with almost any color scheme.

Circle No. 157 on Reader Service Card

#### Doorless Refrigerator

**Product:** Upright reach-in refrigerator with doorless front.

**Manufacturer:** Koch Refrigerators, Inc., Kansas City, Kan.

**Features:** Application of air curtain principle seals off the front of

the cabinet, blankets the product in cold air, and keeps it at standard commercial refrigerator tempera-



tures. Offers advantages of refrigeration and attractive display. Offered in a variety of colors and finishes with adjustable shelves.

Circle No. 158 on Reader Service Card

#### Self-adhesive Tape

**Product:** Polyurethane foam tape.

**Manufacturer:** Richards, Parents and Murray, Inc., New York, New York.

**Feature:** Can be used as an airtight seal around room air-conditioners. Wide strips placed inside units with noisy motors helps deaden sound. Will hold in place despite repeated temperature fluctuations from zero to 300 F. Protective paper on back peels off to expose the adhesive. Available in a wide range of widths and thicknesses.

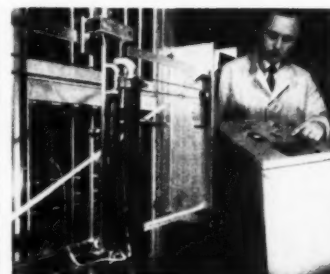
Circle No. 159 on Reader Service Card

#### Air Cleaners

**Product:** Three models of electronic air cleaners.

**Manufacturer:** Minneapolis. Honeywell Regulator Co., Minneapolis, Minn.

**Features:** Three specific cell designs to meet particular needs. All



models have traveling water spray manifold to clean collector plates quickly. Hi-velocity cell provides for removal of 99% of dirt particles when operated at 400 fpm. Designed for such installations as hospitals and laboratories. Advanced capacity maximum efficiency cell offers air

the *Genie*  
in this bottle  
can save you  
endless  
trouble!

**TAKE IT ON EVERY JOB!**

There's a chemical genie in Thawzone that works like nothing else in the world to cure and prevent trouble in refrigeration and air conditioning systems.

*It eliminates freeze-ups • destroys trouble-causing moisture • helps prevent corrosion and copper plating • scavenges out oxygen • helps keep expansion valves free of sludge and rust • You avoid call backs caused by freeze-ups after servicing.*

Take Thawzone on every job, use it in every installation charged with the modern fluorine refrigerants (Freon\*, Genetron\*, etc.) or with methyl chloride, methylene chloride or isobutane. It's economical: 1/4 oz. treats a pound of refrigerant. And it's easy to use.

See your refrigeration wholesaler today for Thawzone and the free Thawzone Service Manual.

\*Reg. Trademark Du Pont & Allied Chemical Corp.

**TWO OTHER AIDS FOR BETTER REFRIGERATION SERVICE**

**TRACE**  
—the simple, fast way to pinpoint refrigerant leaks... a positive leak tag.

**Leak Lock**  
—the joint sealer engineered for refrigeration use.

**THAWZONE**

HIGHSIDE CHEMICALS INCORPORATED  
4 Calfax Avenue • Clifton, New Jersey

Circle No. 49 on Reader Service Card



cleaning efficiency of 90% at 600 fpm and can be used in most normal air-conditioning or ventilating systems. Hi-load cell, offers 90% efficiency at 420 fpm for use where wider collector plate intervals are needed to reduce frequency of washing, such as industrial buildings and bowling alleys. All models can be equipped with the company's activated charcoal filters.

Circle No. 160 on Reader Service Card

#### Electric Tool

**Product:** "Impactool" 1/2" drive heavy duty electric tool with standard attachments (Size 5U-HD).

**Manufacturer:** Ingersoll-Rand, New York, N.Y.

**Features:** Delivers 25% more power, lighter in weight and easier to handle than comparable 1/2" drive electric tools. Rubber nose cap keeps dirt out and prevents scuffing. Heavy duty switch is totally enclosed for



trouble-free service. Measures 10 1/4" in length, 1-7/16" from side to center. Weighs only 6 lb. 4 oz., less cable. Delivers 1900 impacts per minute and runs at a speed of approximately 1900 rpm. Available for 110 or 220 volt operation, ac-dc, 25, 40, 50, 60 cycle. Used primarily for nut running, but with standard attachments it will drill, drive screws, ream, tap, do wire brushing, and hole sawing.

Circle No. 161 on Reader Service Card

#### Air-conditioners

**Product:** High capacity air cooled air-conditioners.

**Manufacturer:** Marvair Div., Muncie Gear Works, Inc., Muncie, Indiana.

**Features:** Available in 2, 3, and 5 ton sizes. The remote units are suited for project and custom home builders as well as for home modernization. Because of higher capacities and quieter operation, units can be installed with every type of forced air furnace, or installed separately.

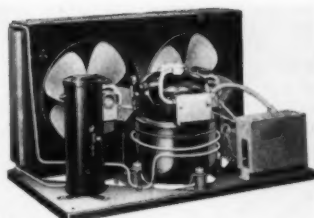
Circle No. 162 on Reader Service Card

#### Condensing Units

**Product:** Air cooled condensing units 4 and 5 hp (Model PFB400HT, PFB500HT).

**Manufacturer:** Tecumseh Products Co., Tecumseh, Mich.

**Features:** For air-conditioning or other high temperature applica-



tions. Available for 230 volt, single phase, and 220/208 volt, three phase. Has four cylinder external mount. R-22, heat pump compressors with direct suction cooling. Includes a 24-volt contactor holding coil and built-

in time delay relay for thermostat operation. Three phase units include circuit breakers for maximum protection. In 90 F ambient with 40 F evaporator, PFB400HT (4 hp) delivers 48,000 Btu, and PFB500HT (5 hp) delivers 62,000 Btu.

Circle No. 163 on Reader Service Card

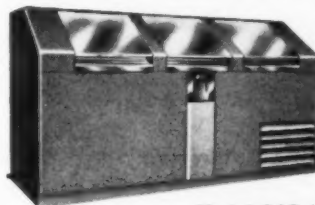
#### Truck Refrigeration

**Product:** "Split Mark" line of over-the-road refrigeration systems.

**Manufacturer:** Kold-Hold Div., Tranter Mfg., Inc., Lansing, Mich.

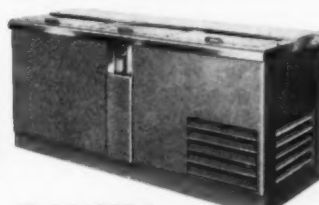
**Features:** Condenser is mounted above, on cab outside the forward

## for BETTER COOLING go NOR-LAKE all the way MILK AND BEVERAGE COOLERS



**Model SCP-6**

Dry Bottle Cooler—Features clean-line design, recessed ice space, two-way blowers and heavy duty compressor. Baked enamel or stainless steel. No installation necessary. 24 models, up to 48 12-oz.-bottle case capacity.



**Model LSCP-6**

Lo Boy Beverage Cooler—Perfect for under counter use—just 34 1/4" high! E-Z slide lids disappear completely. 18 models—up to 40 12-oz.-bottle case capacity. Baked enamel or stainless steel.

#### DIRECT DRAWS



**Model 3KR**

Here's Cold Dome refrigeration right to the faucet tip—a Nor-Lake exclusive! Styled with rounded edges for safety and easy cleaning. Baked enamel or stainless steel. 12 models with up to 4 keg capacity.

#### ICE CUBE MAKERS



**Model SCIM-25**

Fill trays with one hand, without spilling, in this handsome self-contained unit. 4 1/2 bushel storage (630 cubes) with extra bushel freezing! Baked enamel or stainless steel—several models.

### WRITE FOR FULL INFORMATION AND SPECIFICATIONS:

**NOR-LAKE, Inc.**  
Second Ave. and Elm,  
Hudson, Wisc., Dept. 202



**NEED IT NOW?**  
NOR-LAKE can ship  
now—all models kept in  
stock!

Please rush FREE illustrated information on

☐ Bottle Coolers

☐ Direct Draws

☐ Ice Cube Makers

☐ Other \_\_\_\_\_

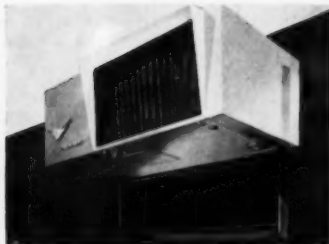
NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

Circle No. 50 on Reader Service Card



wall of the truck body. Power is derived from the truck engine crankshaft. It is transmitted through a flexible shaft and cushioning electric clutch to the compressor. Com-

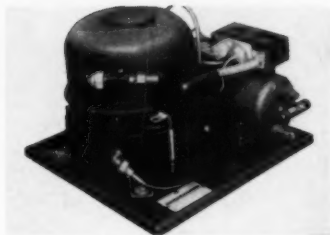
pressor compartment is mounted on the chassis rail. Completely enclosed and provides maximum protection against road dirt. Overall dimensions of condenser housing excluding trim are 35" long, 17" high, 17" wide.  
Circle No. 164 on Reader Service Card

### 1/3-hp Condensing Unit

**Product:** 1/3-hp water cooled condensing unit (Model BWRH33).

**Manufacturer:** Bendix-Westinghouse Automotive Air Brake Co., Evansville, Ind.

**Features:** Compactly designed to conserve space for the installer,



over-all dimensions of only 16-1/4" long, 15-1/4" wide, and 10-1/2" high. Designed for use with R-12. Complete with dual pressure control and water regulating valve.

Circle No. 165 on Reader Service Card

## ANSUL LINE-FLO SIGHT GLASS

Now you see it... now you don't! When the refrigerant is at full charge, the Ansul Line-Flo Sight Glass shows "FULL" clearly, distinctly. But should the charge drop to a low level, the word becomes blurred. Glass is bonded faultlessly to metal in the Line-Flo Sight Glass. No gaskets, no joints, no solder. It's rugged enough to withstand the most unusual strains and vibration... and it's guaranteed leakproof! When a moisture indicator is needed in addition to a sight glass, the Ansul Super Dry-Eye is recommended. ANSUL CHEMICAL COMPANY, MARINETTE, WISCONSIN



REFRIGERATION PRODUCTS  
FIRE FIGHTING EQUIPMENT  
INDUSTRIAL CHEMICALS

Circle No. 51 on Reader Service Card

### Flow Indicator

**Product:** "Thermoflo" hydronic device for indicating flow of water.

**Manufacturer:** Bell & Gossett Co., Morton Grove, Ill.

**Features:** Contains no moving parts that can vibrate. Measures water in gallons per minute through a hot water heating or air-condition-



ing installation. Two soldered connections and a square-head cock are all that is needed for installation. Can be mounted in vertical or horizontal position. Scale and housing adjust to 90° intervals. Sizes range from 1 to 3". Capacities range from 1 to 300 gpm.

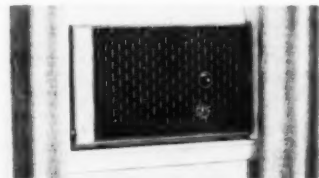
Circle No. 166 on Reader Service Card

### Room Units

**Product:** "Slender" line of room air-conditioners.

**Manufacturer:** Chrysler Corp., Airtemp Div., Dayton, Ohio.

**Features:** Available as window or built-in models. Combines maximum cooling and minimum space. Complete directional control of air-



flow. Available with "Climate Mind-er" control which automatically measures and balances both temperature and humidity.

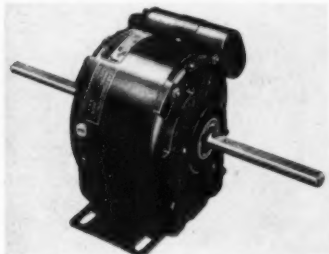
Circle No. 167 on Reader Service Card

#### Replacement Motors

**Product:** Replacement motors for air-conditioning units (Type CY).

**Manufacturer:** Redmond Co., Inc., Owosso, Mich.

**Features:** Can replace air-conditioning motors in units from 1/3



through 2 hp. Permanent split capacitor for higher starting torque and greater running efficiency. Low current requirements give cool running, economical power. Motor is totally enclosed, to eliminate moisture problems and burn-outs. One motor can be used for either two-speed or single-speed replacements.

Circle No. 168 on Reader Service Card

#### Tool Kit

**Product:** "Nut-Buster" kit for removal of rusted or frozen nuts.

**Manufacturer:** Borroughs Tool & Equipment Corp., Kalamazoo, Michigan.

**Features:** The cutter is inserted into the proper cast steel body, and turned, driving the steel vertical



blade into the nut and splitting it. No damaging of threads or bolt. Over 100 nuts may be cut before it is necessary to regrind the blade. Kit is complete with plastic carrying case, two steel bodies and interchangeable steel cutter.

Circle No. 169 on Reader Service Card

#### Electronic Air Cleaner

**Product:** Electronic air cleaner (Model LCT).

**Manufacturer:** Trion, Inc., McKees Rocks, Pa.

**Features:** Designed for hori-



zontal or vertical air flow. It is fitted into the return air duct ahead of the furnace and/or air-conditioner. No water or drain connections necessary. All parts can be removed from the cabinet for cleaning. Cell can be

washed in a tub or hosed down, dried, and put back into service quickly. Removes particles from the air as small as 1/2,500,000".

Circle No. 170 on Reader Service Card

#### Room Air-conditioners

**Product:** "Citation," "Metropolitan," "Medalist" lines of room air-conditioners.

**Manufacturer:** York Corp., Sub. of Borg-Warner Corp., York, Pennsylvania.

**Features:** Acoustically designed air circuits, rubber mountings and fans suspended in space offer

## JARROW *identi-line*

### "JARROW IDENTICAL REPLACEMENT DOOR GASKETS

(IDENTICAL TO ORIGINAL)

*mean satisfied customers...  
less time on the job...  
more money for me."*

- Why?... 1. NO MEASURING  
2. NO CUTTING  
3. NO NOTCHING  
4. NO FORMING

(Except where Original Replacements are furnished in measured lengths only)

Now my independent wholesaler can give me the correct Jarrow Gasket I need for CROSLEY, FRIGIDAIRE, GENERAL ELECTRIC, GIBSON, HOTPOINT, PHILCO, SERVEL and WESTINGHOUSE Refrigerators. (additional makes coming.)

It's simple. Just give him the refrigerator model number and he'll supply you with the identical replacement door gasket.

#### ATTENTION WHOLESALER:

Less selling time is needed at your counter for these **Identical ("identi-line") Replacement Door Gaskets.** Be sure you have them in stock. Your Jarrow "Key Chart" sheets will instantly tell the right gasket your customer calls for.



Circle No. 52 on Reader Service Card



low noise level. Medalist line has net weight of 98 lbs., and can be installed without tools. Snap-in insulation kit contains everything necessary. No holes to drill, no outside brackets. Citation series offers two cooling speeds: one for fast cooling, the other for economical nighttime

comfort. Metropolitan series offers high capacity cooling with no more sound than an ordinary household fan. All three series provide dirt-free, pollen-free air as well as cooled and dehumidified air.

Circle No. 171 on Reader Service Card

#### Thermometers

**Product:** Mercury-thallium thermometers.

**Manufacturer:** H-B Instrument Co., Philadelphia, Pa.

**Features:** Temperature measurements of  $-70^{\circ}\text{F}$ . Mercury-thallium amalgam leaves the bore clean,

eliminates the formation of condensed droplets and chemical changes. Reproducible readings at repeated intervals can be obtained under all climatic conditions. Fin-



ished with yellow back for quick, clear readings. Stocked in seven models in ranges of  $-57^{\circ}\text{C}$  to  $100^{\circ}\text{C}$  and in lengths of 9 to  $18\frac{3}{4}''$ .

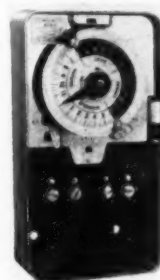
Circle No. 172 on Reader Service Card

#### Time Switch

**Product:** 40 amp tungsten-rated time switch (Series 4000).

**Manufacturer:** Paragon Electric Co., Two Rivers, Wis.

**Features:** For use with pumps, blowers, motors, heating and air-conditioning systems. Includes a snap-out movement permitting quick and easy removal of the entire movement and a spring clutch which allows the dial to move freely for checking "on" and "off" switching



operation. Quick-set dial is calibrated in 15 minute sections, and subdivided into six hour quadrants, "morning," "afternoon," "evening," and "night." Omitter device is available for skip-a-day applications. Switch ratings are: 40 amps, 40 amps Tungsten per pole, 120 or 240 volts, 1 hp at 120-240 volts; current: 120 or 208-240 volts, 60 cycles, 24 volts and 25 and 50 cycles available; operations: up to 14 per day. Two trippers furnished as standard. Dimensions:  $7\frac{3}{4}''$  high,  $4\frac{1}{4}''$  wide,  $3''$  deep.

Circle No. 173 on Reader Service Card

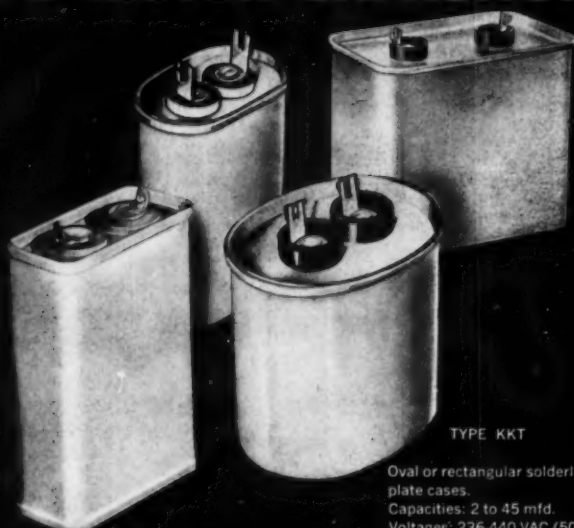
#### Air Cooled Unit

**Product:** Packaged air cooled air-conditioner and gas fired heater.

**Manufacturer:** Typhoon Air Conditioning Co., Div. of Hupp Corp., Brooklyn, N. Y.

**Features:** Designed for roof mounting. Available in two sizes with nominal air-conditioning capacities of 5 and 8 tons. Offers complete year-round system for commercial and industrial buildings. Frees valuable floor space for selling or other operations. Gas fired heating system provides 160,000 Btu/hr output, and

## You get more types to choose from with C-D MOTOR CAPACITORS



TYPE KKT

Oval or rectangular solderless terhe-plate cases.  
Capacities: 2 to 45 mfd.  
Voltages: 236-440 VAC (50-60 cycles)

Now, the most dependable capacitor manufacturer gives you the most complete line of motor capacitors specifically designed for air conditioning and refrigeration applications. Cornell-Dubilier's expanded line of trouble free motor capacitors includes more of the latest and most popular types and sizes than ever before. So fill all your

requirements from one reliable source. Insist on C-D motor capacitors... the capacitors "preferred" by motor makers and repairmen alike for over 25 years. See your local C-D Distributor and select the types you need from Catalog XTR-MOT. Write for your free copy to Cornell-Dubilier Electric Corporation, South Plainfield, New Jersey.

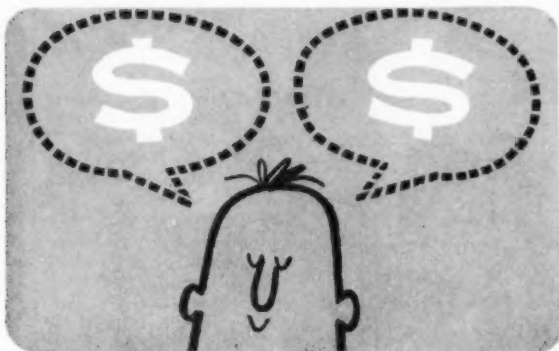


Consistently Dependable  
**CORNELL-DUBILIER**  
MOTOR CAPACITORS

Circle No. 53 on Reader Service Card



# A new source of profit— the new “VIRGINIA” plan for selling water treatment service



Looking for new sources of profit? Then “Virginia” has an exciting new plan for you. It makes water treatment service easier and more profitable than ever before. We can show you how to sell this service to your present customers—open profitable new accounts! Its many benefits make it astonishingly easy to sell.



This service fits in perfectly with ones you now offer—makes you an all-around expert—helps you to spot potential mechanical failures before they occur—keeps your men busy all year round. You become so valuable to your customers you will never be troubled with “poaching” by competitors. Start improving your profit picture now!



All “Virginia” Water Treatment Chemicals are easy and safe to use. Our Ice Machine Cleaner, for example, will not injure enamel or metal surfaces—stops slow freeze, sticking cubes, cloudy ice with bad taste and odor—cleans automatic cube or flake ice machines better and quicker than any cleaner you have ever tried!



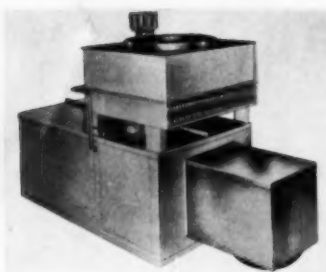
The full line of “Virginia” Water Treatment Chemicals includes Scale and Corrosion Inhibitor, Solid and Liquid Scale Removers, and Algae-Cides #1 and #2. Get free booklet, “How to Turn Water into Money,” by writing to Refrigeration Division, VIRGINIA SMELTING COMPANY, 245 Jefferson Street, West Norfolk, Va.

WATER TREATMENT CHEMICALS • ESOTOOL • V-METH-L • CAN-O-GAS • VASCOCEL • PRESSTITE TAPE • PERMAGUM  
SUNISO REFRIGERATION OILS • NATIONAL SALES AGENT & REPACKER FOR DU PONT'S “FREON” REFRIGERANTS

Available in Canada and many other countries

Circle No. 54 on Reader Service Card





is completely contained within the unit. Complete unit includes cooling and heating systems, air filters, blowers and controls. Internal piping and

wiring is done at the factory. Air distribution plenum and diffuser is supplied with the unit.

Circle No. 174 on Reader Service Card

#### Portable Refrigerators

**Product:** Portable refrigerators (Model LP112, LRI-5-IM.)

**Manufacturer:** Loudon Mfg. & Sales Co., Minneapolis, Minn.

**Features:** Model LP112 offers large storage area for beverages, food or pharmaceutical products plus greater ice cube capacity. Total of 2.6 cu.ft. Measures 22½" high, 21" wide, 25½" deep. Available in copertone or white baked enamel.

Model LRI-5-IM can be used with Model L5X Freezer. Can be used side by side, mounted one on top of the other or hung from the wall. Right or left hand door. Both units measure 34" high, 27" wide, 26¼" deep.

Circle No. 175 on Reader Service Card



**EVER SEE A BUSINESS MAN** who didn't have calling cards scattered throughout his desk? The practical "Card Caddy" with alphabetical guides keeps calling cards in order. Adjusts to hold few or many cards up to 3½ x 2". Gold-tone aluminum finish for use on desk or fits in top drawer. Has variety of uses including inventory, mailing lists, records, or professional data. Jr. size holds 750 cards, \$2.49; Sr. size holds 1000 cards, \$2.98, postpaid, The Hahn Co., Box 64532, Los Angeles 64, Calif.



## HEART of the START and of the run, too! Sprague Motor Capacitors

Sprague's full line of motor capacitors covers all the popular ratings and types used in air conditioners, refrigerators, motors, compressors, and other a-c applications. New Catalog C-912a gives valuable capacitor troubleshooting hints . . . covers all the latest information on case styles, ratings, mountings, terminal assemblies, prices, and other important information on plastic and metal-encased starting electrolytics, as well as Clorinol® A-C Running Capacitors and Koolpak® Capacitor Assemblies.



Complete Catalog C-912a covers all the new capacitors used in all late model equipment.

Write for your free copy of Catalog C-912a to Sprague Products Company, 53 Marshall Street, North Adams, Massachusetts.

don't be vague . . . Insist on

# SPRAGUE®

world's largest capacitor manufacturer

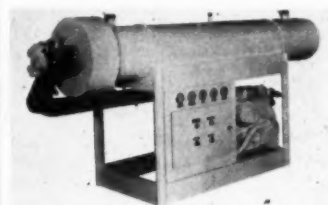
Circle No. 55 on Reader Service Card

#### Liquid Chiller

**Product:** "Herman Nelson" packaged liquid chiller for schools.

**Manufacturer:** American Air Filter Co., Inc., Louisville, Ky.

**Features:** Functions as part of the unit ventilator air-conditioning



system. Ten models offered ranging from 20 to 120 hp. Capacities range from 15 to 166 tons depending on entering and leaving water temperature. Chiller is of shell and coil type, glass fiber insulated against heat loss and condensation.

Circle No. 176 on Reader Service Card

#### Beverage Coolers

**Product:** "Zephyr" combination ice cube maker and beverage cooler (Series Z-150).

**Manufacturer:** Howard Refrigerator Co., Inc., Philadelphia, Pa.

**Features:** Designed to meet the requirements of small drive-in and road-side restaurants, and beverage establishments. Cooling capacity of 8½ cases of bottles within easy cus-



You can save time by mass producing fitting covers at a central location, distributing them where needed. That's what was done at the new Palo Alto-Stanford University Medical Center, at Palo Alto, California, where cold water lines are insulated with Armstrong Armaflex Pipe Covering.

## Now insulate fittings in half the time and less with Armstrong Armaflex Pipe Covering

Insulation of fittings is at least 50% faster with Armstrong Armaflex than with the old-style, conventional types of insulations. All you do is miter-cut Armaflex tubing, cement the pieces together with 520 Adhesive, slit and snap over the fitting.

This flexible foamed plastic pipe insulation stands up under job handling without breaking, cracking, crumbling, or dusting.

Not only is Armaflex faster for fitting covers but it also saves time on straight or bent piping. You simply slip on Armaflex before piping is connected, or slit and snap it on afterwards.

A highly efficient insulator, Armstrong Armaflex is recommended for any heating or cooling line that operates to 200° F. It is completely vapor-proof, positively stops pipe sweat, needs no finishing.

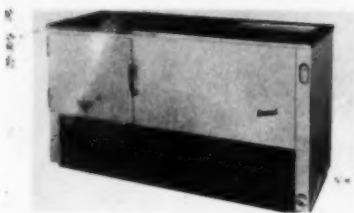
Armaflex comes in a variety of wall thicknesses and pipe sizes and is also available in sheet form. Learn how other contractors are using time-saving Armaflex, how you can use Armaflex yourself. Send for Armaflex folder and complete specifications including instructions for application. Armstrong Cork Company, 2207 Roth Avenue, Lancaster, Pennsylvania.

**Armstrong INSULATIONS**

Circle No. 56 on Reader Service Card

### THE TREND TO ARMAFLEX CONTINUES — HERE ARE JUST A FEW RECENT JOBS

Commercial Credit Building  
Baltimore, Md.  
Taylor Milk Co.  
Ambridge, Pa.  
Stop & Shop Supermarket  
Holyoke, Mass.  
Connecticut General Life  
Insurance Company  
Hartford, Conn.  
Asbury Methodist Hospital  
Minneapolis, Minn.  
Kutsher's Country Club  
Monticello, N. Y.



tomer reach, and 280 ice cubes thru quick release trays. Z-100 available as beverage cooler only. Finished in two tone baked enamel exterior and stainless steel tops and lids. Both models measure 26½" deep, 36" high. Z-100 measures 44½" long, and

Z-150 measures 65¼" long. Booth coolers may be used for wet or dry operation.

Circle No. 177 on Reader Service Card

#### Gas Wall Heater

**Product:** "Custom Counterflow" direct-vent gas wall heater.

**Manufacturer:** Heil-Quaker Corp., Nashville, Tenn.

**Features:** Designed for attractive appearance. Can be installed fully recessed, partially recessed, or hung on the wall. Vents flush with the outside wall in any of the three positions. Delivers heat at the floor



for maximum heating comfort. No air is drawn from the room being heated. Only outside air is used for combustion, and products of combustion are exhausted to outside through sealed porcelain combustion chamber. Available for natural or LP gas, with 30,000 Btu/hr input.

Circle No. 178 on Reader Service Card

## control noise and vibration



...install units  
on  
**ISOMODE® PADS**

• It's easy to avoid complaints due to annoying vibration and noise. When installing air conditioning units, simply set them on ISOMODE PADS. Just cut what you need for the weight of the unit, place the Pads under each corner and that's it. ISOMODE PADS swallow up vibration, muffle noise on any type floor.

Made of Neoprene, these cross-ribbed, 5/16"-thick pads cut with ordinary shears, need no cementing, resist oils and water, last for years. One standard economy package of ten 18" x 18" ISOMODE PADS gives you enough for mounting 160,000 pounds of equipment. Write for prices and detailed Bulletin No. 415.

**MB MANUFACTURING COMPANY**

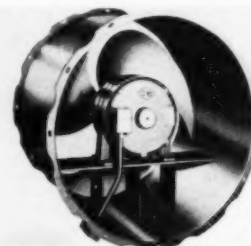
A DIVISION OF TEXTRON INC. 1065 State Street, New Haven 11, Conn.

Circle No. 57 on Reader Service Card

#### Duct Fan

**Product:** Tubeaxial duct fan.  
**Manufacturer:** Ilg Electric Ventilating Co., Chicago, Ill.

**Features:** Sixteen sizes, ranging in capacity from 1040 to 21,200 cfm at static pressures up to 1½".



Can be installed as easily as a section of duct. Can be mounted in any position. Smaller sizes have a 3-blade propeller; larger, a 5-blade design. Totally enclosed motor with permanently lubricated ball bearings keeps service to a minimum.

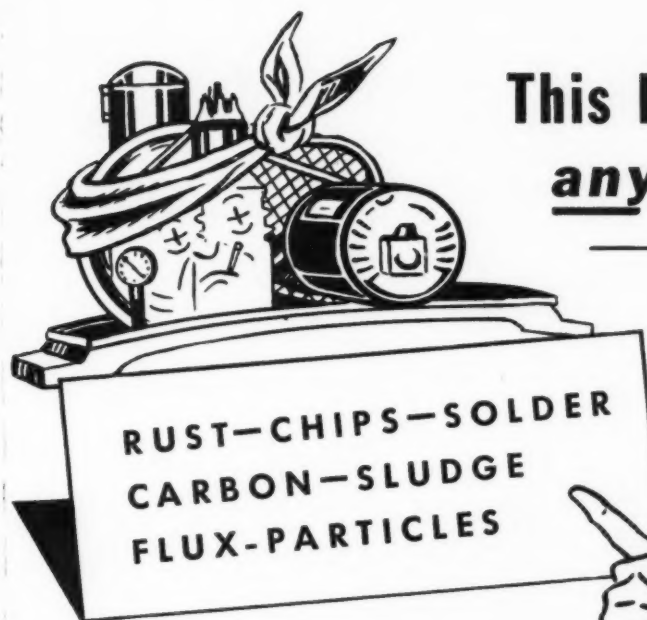
Circle No. 179 on Reader Service Card

#### Year-round Units

**Product:** Line of all-electric incremental conditioners (Type EK).  
**Manufacturer:** Remington Air Conditioning Div., Auburn, N. Y.

**Features:** Provides heating and cooling for either existing or new multi-room buildings such as apartment houses; hospital rooms; hotel and motel guest rooms; office buildings; and residences. Can be installed for heating only and cooling can be added later. When switch is in the on position the thermostat can be set and the unit will heat or cool as required to maintain desired room temperature. Three cooling capacities from 9000 to 15,100 Btu/hr, and





This Diet would make  
any System Sick!



The Permanent, Low-cost Cure is

# PERMACLEAN

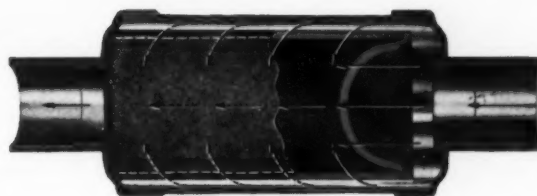
## SUCTION — LIQUID — FILTERS

Like your automobile engine, refrigeration systems need the protection of a low-micron filter to prevent scoring of cylinders, wear on moving parts, sticking of valves, clogging of passages . . . and eventual expensive shutdowns and repairs.

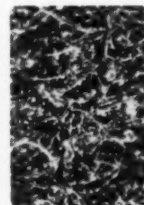
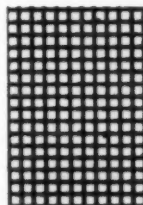
Prevention and cure are easy and economical. Simply install low-cost Permaclean Filters in the suction line, and in the liquid line ahead of driers, expansion or solenoid valves and capillary tubes.

Permaclean Filters are made of all brass, with high-capacity, low-micron\* filtering element that traps and holds finest particles, with minimum pressure drop. Available at your wholesaler in four models and 22 sizes, for systems up to 20 tons.

**The McIntire Company**  
Okner Parkway, Livingston, N. J.



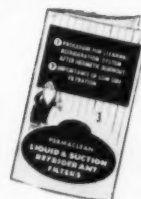
\*27 times finer than 100 mesh screen



The Permaclean Filter element filters out particles down to 5 microns, or .000195". Crivices trap greater volume. See comparison of Permaclean filter with 100 x 100 mesh screen, each magnified 8 times.

SEND FOR THIS INFORMATIVE FOLDER

Explains importance of low-micron filtration; gives procedure for cleaning refrigeration systems after hermetic burnouts; shows models and dimensions of Permaclean Filters.



**DRIERS • FILTERS • STRAINERS • ACCESSORIES**

Circle No. 58 on Reader Service Card

three heating capacities from 8000 to 15,300 Btu/hr. Heating and cooling capacities available in any combina-



tion. All capacities offered for either 208 or 230 volt single-phase current.

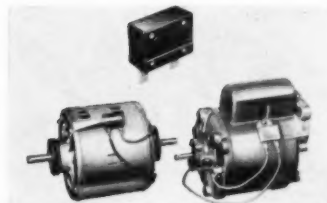
Circle No. 180 on Reader Service Card

#### Overload Protector

**Product:** Overload protector for fractional horsepower motors (Model MP-1620).

**Manufacturer:** Mechanical Products, Inc., Jackson, Mich.

**Features:** Trips in response to either rising temperature of the motor or excessive current draw. Adaptable to the use of fans, air-conditioners, refrigerators, freezers, and pumps. Automatically shuts off current when temperature or current rises dangerously, and restores motor operation when temperature or current is dropped. Actuation by temperature of the thermal element in various applications can be varied



to open the circuit at any stage of temperature or current rise. Attaches to the surface of motor housing with cold rolled steel box bracket, or clamp that goes under the head of one of motor's through-bolts.

Circle No. 181 on Reader Service Card

## Read Superheat the MARSH way—



—It's the sure way—the easy way  
...and it costs less!

#### Serviceman "Super-Heat" Kit

Contains two attractive, polished brass, 2½-inch thermometers, graduated —40° to +65° F. Also two insulating wrappers for easy bulb attachment and to insulate bulbs from ambient temperature (vital to testing accuracy). Thermometers, wrappers and manuals compactly held in durable 3" x 8" x 1¼" box with handy hinged cover. Moderately priced thanks to efficient production.



Your setting of the expansion valve can be no more accurate than your reading of superheat. How do you read it?

The Marsh way is the accurate way... the lowest cost way, too, when you compare these long-lived thermometers with the breakable glass tube kind.

Instead of those hard-to-read, hard-to-use glass tube thermometers, a handsome pair of distant reading dial thermometers with small bulbs easy to attach at exactly the right place. Widely spaced markings in working area assure far greater reading accuracy than is possible with glass tube thermometers... guaranteed accurate within one division plus or minus.

Put the bulbs where they belong; the dials where they can be seen and compared... and you're "in business." Manual in every kit tells how to get best results. Write for facts or

See Your Wholesaler

MARSH INSTRUMENT CO., Sales Affiliate of Jas. P. Marsh Corp.,  
Dept. P, Skokie, Ill.

Marsh Instrument & Valve Co., (Canada) Ltd., 8407 103rd St., Edmonton, Alberta. Houston Branch Plant, 1121 Rothwell St., Sect. 15, Houston, Texas.

**MARSH** Refrigeration Instruments

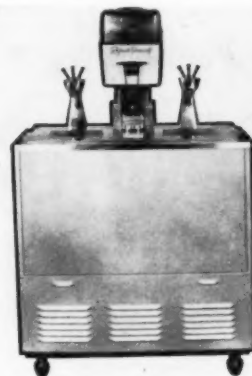
Circle No. 59 on Reader Service Card

#### Drink Dispenser

**Product:** "Drinkmaker" seven flavor drink dispenser.

**Manufacturer:** Council Mfg. Corp., Fort Smith, Ark.

**Features:** Offers dual riser heads and island-type dispenser. Faucets can be arranged to give carbonated or plain water drinks in any combination, plus club soda and



plain ice water. Riser heads have fizzer buttons to give carbonated jet stream flow for fancy fountain drinks. Contains 4 syrup tanks and provides for remote installation of additional tanks. Interior of syrup tanks are stainless steel. Can accommodate second remote drinkmaker facility to meet the needs of heavy traffic operations. Pressure-refrigerated system offers blended drinks at exactly the right temperature.

Circle No. 182 on Reader Service Card

#### KALAMAZOO GROUP ELECTS NEW OFFICERS

Harold Guernsey has been elected president of the Kalamazoo Indoor Comfort Bureau. Other officers elected are; vice president, John Van Dalson; treasurer, W. K. Ahlrich, and secretary, Glen Rynbrand. Elected to the board of directors were John DeHann, Albert Vosburgh, Claude Bartholomew and Donald Snyder.

**"No call-backs to kill my profits  
...I use White-Rodgers Controls"**



Type 1609-12 is the pinch-hitting king of the control world. With its range  $-20$  to  $+50^{\circ}$  F., Adj. Diff. 3 to 25°, 5 ft. capillary with  $5\frac{1}{4} \times \frac{1}{8}$  inch bulb, it can step in and handle practically any emergency. No wonder so many wise servicemen always keep several on hand ready to take over where "ordinary" controls just can't do the job.

"Talk about *quality*—White-Rodgers controls have got it! They keep our customers happy—and keep us out of trouble! No matter how rugged the job, White-Rodgers controls have never let me down."

For remote temperature control of vital commercial and industrial installations such as refrigerated storage rooms, display cases, cabinets, walk-in boxes, or blood banks, the envied Quality of White-Rodgers controls with exclusive Hydraulic-Action tells its own story . . . with positive performance . . . and long service life.

**WHITE-RODGERS**

ST. LOUIS 6, MISSOURI - TORONTO 8, CANADA



## 65% OF SPACE SOLD FOR 11TH INDUSTRY SHOW

Already 65% of available space has been sold to exhibitors at the 11th Exposition of the Air-conditioning & Refrigeration Industry scheduled to be held in Atlantic City's Convention Hall November 2-5, reports R. H. Luscombe, exposition chairman.

The following companies have signed contracts for exhibit space:

Addison Products Co.; Acme Steel Co.; Air Conditioning, Heating & Refrigeration News; Airserco Mfg. Co.; Airtemp Div., Chrysler Corp.; Alco Valve Co.; Allen-Bradley Co.; Allin Mfg. Co.; Harry Alter Co., Inc.; American Brass Co.; American Coils Co.; American Ice-Machine Co.; Ansul Chemical Co.; Armstrong Cork Co.; Arrow-Hart & Hegeman Electric Co.

Bacharach Industrial Instrument Co.; Bally Case & Cooler Co.; Baltimore Aircoil Co., Inc.; Barr Mfg. Co.; Bell & Gossett Co.; Bendix-Westinghouse Automotive Air Brake Co.; Betz Div., Bohn Aluminum & Brass Corp.; Binks Mfg. Co.; Bundy Tubing Co.; A. M. Byers Co.

Calgon Co., Div. of Hagan Chemicals & Controls, Inc.; Carrier Corp.; Century Electric Co.; Chemical Solvent Co.; Chicago Reference Book Co.; Clayton Mark & Co.; Coldin Cabinet Co.; Controls Co. of America; Coolerator Div., McGraw-Edison Co.; Copeland Refrigeration Corp.; Curtis Mfg. Co.; Cutler-Hammer, Inc.

Du Pont, E. I., de Nemours & Co., Inc.; Davison Chemical Div., W. R. Grace & Co.; Detroit Controls Div. of American-Standard; Detroit Stamping Co.; Dole Refrigerating Co.; Dow Chemical Co.; Dunham-Bush, Inc.; Elco Mfg. Co.; Edwards Engineering Corp.; Elkhart Products Corp.; Encyclopaedia Britannica; Evans Mfg. Corp.

Federal Refrigerator Mfg. Co.; Fogel Refrigerator Co.; Frankell Mfg. Co., Inc.; Frick Co.; Frigid Igloo Mfg. Corp.; Frigidaire Div., General Motors Corp.; Furnas Electric Co.; Gem Refrigerator Co.; General Chemical Div., Allied Chemical Corp.; General Controls Co.; General Electric Co. (Schenectady).

Heating Publishers, Inc.; Henry Valve Co.; Highside Chemicals, Inc.; Hill, C. V., & Co., Inc.; Holsclaw Bros., Inc.; Imperial Brass Mfg. Co.; Jackes-Evans Mfg. Co.; Jamison Cold Storage Door Co.; Jarrow Products, Inc.; Keeney Publishing Co.; Kenmore Machine Products, Inc.; Kerotest Mfg. Co.; Kirsch Co.; Kold-Hold Div., Tranter Mfg., Inc.; Koppers Co., Inc.; Larkin Coils, Inc.; Lehigh Mfg. Co.; Lewin-Mathes Co.

McCray Refrigerator Co., Inc.; McIntire Co.; McQuay, Inc.; Madden Brass Products Co.; Market Forge Co.; Marley Co.; Marlo Coil Co.; Marsh Instrument Co.; Meier Electric & Machine Co., Inc.; Metals & Controls Corp.; Milwaukee Electric Tool Corp.;

Minneapolis-Honeywell Regulator Co.; Mueller Brass Co.; F. E. Myers & Bro. Co.

National-U.S. Radiator Corp.; Nickerson & Collins Co.; Olin-Mathieson Chemical Corp.; C. A. Olsen Mfg. Co.; D. W. Onan & Sons, Inc.; Owens-Corning Fiberglas Corp.; Paragon Electric Co.; Peerless Equipment Corp.; Penn Controls, Inc.; Pennsalt Chemicals Corp.

R-B-M Div., Essex Wire Corp.; Ranco, Inc.; Recold Corp.; The Refrigeration & Air-conditioning Business; Refrigeration Appliances, Inc.; Refrigeration Research, Inc.; Refrigerating Specialties Co.; Remington Arms Co., Inc.; Reynolds Metals Co.; Rheem Mfg. Co.; Rochester Products Div., General Motors Corp.

C. Schmidt Co.; Scotsman-Queen Products Div., King-Seely Corp.; Cyrus Shank Co.; Sherer-Gillett Co.; Smith, A. O., Corp.; Sporlan Valve



Co.; Sprague Electric Co.; Sprague Engineering Corp.; Standard Refrigeration Co.; Stiles Karlsonite Corp.; Superior Valve & Fittings Co.

Tecumseh Products Co.; Temprite Products Corp.; Tenney Engineering, Inc.; Tork Time Controls, Inc.; True Mfg. Co.; Tyler Refrigeration Corp.; Typhoon Air Conditioning Corp.; Union Carbide Chemicals Co.; United Wire & Supply Corp.; Victory Metal Mfg. Corp.; Viking Copper Tube Co.; Vilter Mfg. Co.; Virginia Smelting Co.

Wagner Electric Corp.; Walton Laboratories, Inc.; Warren Refrigerators; Watsco, Inc.; Westinghouse Electric Corp. (Pittsburgh); White-Rodgers Co.; Wolverine Tube, Calumet & Hecla, Inc.; Worthington Corp.; Wabash Corp.; York Corp.

## LA CROSSE EXPANDS WAREHOUSE FACILITIES

Additional warehouse facilities represents the major portion of an expansion program by La Crosse Cooler Co. The company has also enlarged its painting department, oven facilities, and development and experimental departments.

## PENNSALT OFFERS FREE CYLINDER STANDS

With the announcement of its free cylinder stand promotion in April, Pennsalt Chemicals started its second nationwide merchandising campaign for air-conditioning and refrigeration wholesalers and servicemen within a month's time.

The Isotron cylinder stand promotion announcement reached wholesalers after an extensive campaign to introduce Pennsalt's factory-sealed containers for its Isotron refrigerants.

Both campaigns offered wholesalers and servicemen incentives to use Pennsalt Isotron refrigerants. Both were timed to alert the trade at the start of the heavy air-conditioning and refrigeration season.

To promote the free cylinder stand, Pennsalt provided wholesalers with colorful die-cut brochures, counter stands, cylinder tags, and window streamers. Cards explaining how the newly-designed cylinder stand could be obtained free were sent to 15,000 refrigeration and air-conditioning servicemen.

## GETS INHIBITOR PATENT

U.S. Patent No. 2,877,188 has been issued to Hagan Chemicals & Controls, Inc., for "Corrosion Inhibitor CS", a new chemical compound for inhibiting corrosion in closed recirculating water systems, with or without anti-freeze.

The non-chromate product which has undergone four years of extensive field tests, protects such metals as steel, copper, brass, aluminum and solder.

## I-B-R SCHOOL HONORS 12,000TH STUDENT

A Minneapolis plumbing-heating contractor, Richard Bowler of Bowler Plumbing & Heating, was honored with a special certificate for being the 12,000th student to attend the Institute of Boiler & Radiator Manufacturers school.

Bowler was one of 78 students who traveled as far as 300 miles to attend classes held in Minneapolis April 7-9. The enrollment consisted of contractors, wholesalers, and manufacturers representatives.





## Are You Paying Premium Prices For Your Pipe Wrapping?

Now...cut costs, reduce inventories and profit more with the one standard insulation that fits every pipe and fitting, meets every service requirement!

### THREE INSULATING BARRIERS in



1. OUTSIDE  
Rough surface prevents free circulation of moisture-filled air—creates dead air barrier.
2. 1/4-INCH THICKNESS  
Built-in moisture barrier assures utmost insulating efficiency.
3. INSIDE  
Dead air is trapped between "corrugated strands", forms added insulation barrier.

NoDrip Tape means more profit, less work on every job...saves you time, labor, material. NoDrip Tape eliminates most multiple wrappings needed with thinner wraps...inferior wraps.

Why pay more when you can buy the handy 16 foot roll of 1/4" thick NoDrip Tape at less than half the cost of a roll of ordinary 1/8" wrapping...and far below the cost of pre-formed foam cellular insulations?

Next time an equipment cold line job

calls for permanent protection against condensation drip, "sweating" or frost, insist on using NoDrip Tape. Stops rust and corrosion, too...holds temperatures more constant and increases the efficiency of the cooling equipment.

NoDrip Tape is pliable, cork-filled and completely self-adhering. Easy to work with...forms an air-tight, 100% vapor and moisture proof jacket. Needs no tools, vapor seals, fasteners, brads or adhesives.

### NO DRIP PLASTIC COATING... PROTECTION FOR BIG AREAS



For large pipes, tanks, air ducts, we recommend NoDrip Plastic Coating for permanent protection from condensation, rust and corrosion. Another fine Mortell refrigeration product, NoDrip can easily be applied by brush or trowel to metal, concrete, brick, plaster, tile or composition surfaces.

### Easier to Apply...

EVEN AROUND JOINTS, TEES, VALVES OR ANGLES



# Mortell

COMPANY

Makers of Mortite Caulking Cord and Mortite Caulking Gum

The Mortell Company, Dept. 3  
548 Burch St., Kankakee, Ill.

O.K. I Send me full information about the complete line of Mortell refrigeration products.



I'm a Jobber.....Dealer.....Serviceman.....  
Name.....  
Firm.....  
Address.....  
City.....State.....

## LEAVE IT TO THE GIRLS

### ... to sharpen sales arguments

IT WAS LISTED on the program of the National Heating & Air-conditioning Wholesalers convention in Los Angeles as "Ladies Brain Storming Session — Cow Girl Rodeo."

Roll-'em-in-the-aisle laughs were expected as two teams of wholesalers' wives took the stage to compete in ad-lib "brainstorming" of two faces of selling air-conditioning.

The laughs were there, but they died abruptly as the women punched shrewd, sharp, sales-boosting ideas.

Moderator Walter J. Baak, of Minneapolis Honeywell Regulator Co., asked Team No. 1: "Why should the North American housewife have year-round heating and air-conditioning?"

Here were the answers, condensed, in the order that they came from the attractive brainstormers:

1. Comfort
2. Happiness, companionship
3. Improved disposition (of men)

4. Health
5. It is economical
6. Higher property values
7. Prestige
8. Safety
9. Cleanliness

Team No. 2 was asked to give "Ways I can create a keener understanding of and demand for better heating and cooling among my circle of friends and neighbors."

Their answers:

1. Entertain in air-conditioned home
2. Explore new areas for development
3. Tell your friends
4. Point out that it is a necessity, not a luxury
5. Tell PTA, friends and social groups
6. Use available advertising aids
7. Through children
8. Tell friends of improved health and cleanliness
9. For laughs, genteel "sabotage" was suggested—

(Turn up your friend's thermostat, and then politely "suffer" in the non-air-conditioned room!)

Male NHAW convention delegates who had come for chuckles soberly sat making mental notes of fresh ideas to take home to their sales managers. A diplomatic team of judges declared the brainstorm contest to be a "draw".

### WHOLESALE TO SELL "UCON" REFRIGERANTS

"Ucon" refrigerants now will be distributed to the replacement market only through wholesalers of air-conditioning and refrigeration products.

This statement of policy was published jointly by Union Carbide Chemicals Co., Div. of Union Carbide Corp.; and Ansul Chemical Co., Carbide's exclusive sales agent to air-conditioning and refrigeration wholesalers.

The two companies stated further that they would:

- (1) Provide adequate stocks in a large number of strategically located warehouses to facilitate prompt deliveries.
- (2) Assure prompt deposit refund by paying from a number of cylinder return points.
- (3) Provide technical informa-

tion and help to the wholesaler and to his customers.

(4) Promote their products and the air-conditioning and refrigeration industry through national advertising.

(5) Provide sales promotion help to wholesalers through industry show participation, personal contact, and other media.

(6) Cooperate with wholesalers and their customers in educational activities.

(7) Provide current information on terms, conditions of sale, and price.

(8) Maintain a continuing research program involving both refrigerants and refrigerant applications.

(9) Practice sound business policies and work diligently for the development of the industry.

### STUDIES MEAT CHILLING

One of the highlights of the 10th International Congress of Refrigeration in Copenhagen, Aug. 19-26, will be a study of the experiments made in Denmark with radiation chilling of meat.

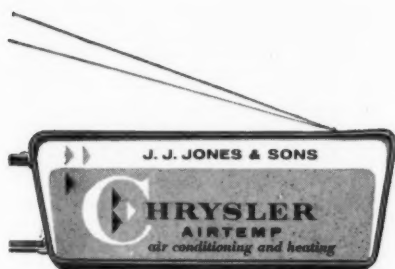
A discussion of thermoelectric cooling also will be held. In addition, further investigations regarding the possibilities of freezing slaughterhouse meat without prior chilling will be analyzed.

**YOUR WHOLESALE  
CAN SERVE YOU—LET HIM!**

### IMPULSE BUYING SPURS WHOLESALE'S BUSINESS



**SELF-SERVICE DISPLAYS** form an important part of the merchandising facilities of Allied Supply Co., Inc., Dayton, Ohio, but of course this refrigeration and air-conditioning wholesaler offers complete counter service as well. Customers previewed the new quarters during a recent open house featuring factory-staffed displays sponsored by the company's major suppliers.



# Climate by Chrysler

**men who sell it  
bank bigger profits  
... all year long!**

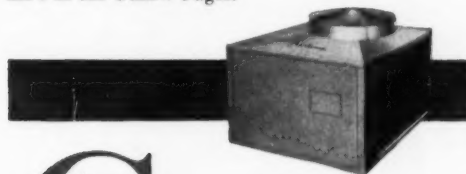


Everyone gains when you sell Chrysler residential heating and air conditioning. For customers, there are real sales features to make them happier. For you, there are special advantages that help you bank more profits on what you sell.

Take the features: In Climate by Chrysler, you'll be selling the air conditioning and heating equipment picked for the NAHB Research House in South Bend, Ind. Customer acceptance is tops . . . because you'll be offering exclusives like Chrysler's Climate-Minder Control, 3-way air purification system, and the patented Contour Flame gas burner.

And as for profits: Since you'll be selling the most versatile line in the industry, you can depend on getting the best—and most profitable—combination for any job. With Chrysler's reputation for quality and dependability, your profits won't be drained away by costly service calls. What's more, you'll be backed by advertising and promotion that will bring eager, qualified prospects trooping in.

There are no slack seasons when you sell Chrysler Heating and Air Conditioning. Get the full story from your local Chrysler Distributor . . . today! He's in the Yellow Pages.



## CHRYSLER AIRTEMP

Airtemp Division, Chrysler Corporation, Dept. O-79, Dayton 1, Ohio  
Canadian Distributor: Therm-O-Rite Products, Ltd., Toronto, Ontario

## DIRECT MAIL AIMED AT RESIDENTIAL SALES

A direct mail program designed to develop high quality leads for central residential air-conditioning sales has been announced by American-Standard Air Conditioning Div. The package includes a three-part campaign to cover the area designated by the participating dealer.

American-Standard will compile the mailing lists of homeowners by name, or the folders will be mailed to the dealer's own

prospect list. The third alternative is for the dealer to handle his own mailing.

The material included in the package describes the benefits and advantages of central air-conditioning and the ease with which it can be installed. The dealer's name is imprinted in two places on each of the mailers including an attached business reply card.

**YOUR WHOLESALER  
CAN SERVE YOU — LET HIM!**



**ERECTA-SHELF  
SELLS ITSELF**

## MAKES EXTRA PROFITS FOR YOU!

**Easy to use—easy to sell!** Patented Erecta-Shelf is a low cost shelving tailor-made to sell with original walk-in cooler equipment or replacements.



Made of strong steel rods, capable of supporting 1000 lbs. per shelf, Erecta-Shelf permits complete air circulation, and may be hosed down for easy cleaning!

Each unit consists of uprights and shelves notched to friction-fit tightly and lock rigidly in place. No nuts or bolts are required! Assembly takes only minutes and new arrangements or additions may be made to accommodate items in all sizes, weights and shapes!

Durable, lightweight, amazingly strong—designed to meet every storage need—Erecta-Shelf just about sells itself. One demonstration will sell you on this extra profit maker. Write today for details!

**ERECTA SHELF**

*a quality product of*

**METROPOLITAN WIRE GOODS CORP.**

N. WASHINGTON ST. and GEORGE AVENUE  
WILKES-BARRE, PA.

Circle No. 63 on Reader Service Card

## PROPOSAL

*Continued from page 41*

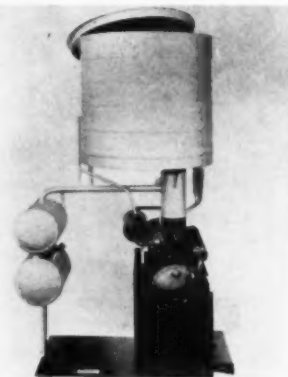
involved. The fifth, on heavier paper, acts as a delivery ticket.

The new folder not only serves as a stylish cover for the proposal, but it also becomes a handy reference file for the customer. Taylor believes the latter feature could help to promote repeat business because the firm name is carried on a tab just beyond the folder's margin. This tab is easy to see in a file drawer.

Another merchandising feature is a flap across the bottom of the folder to hold sales literature. The firm name also is printed on the front cover along with Quiggin's slogan, "Your 'Q' to Better Heating and Cooling for Over 40 Years." The customer's name and address shows through a small window in the front of the folder. Just above the window is printed the message, "Proposal Prepared For."

"Printing our proposals and placing them in folders has given us a presentation we are proud to submit," Taylor says. "It's now easier to control our operation too, because our proposals are more uniform and there is little chance for us to make a mistake or for our customers to misinterpret any terms of the contract."

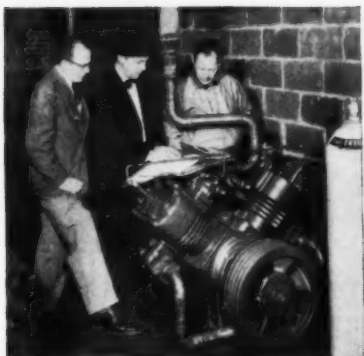
## ANOTHER MUSEUM PIECE



**A NEW ADDITION** to the Recold Museum of Air Conditioning and Refrigeration is this kerosene operated absorption refrigeration unit, donated by Bert Terry, Melbourne, Australia. The pioneer refrigeration equipment was designed for use in remote areas not served by gas or electricity and where a source of cooling water was not available.

THE REFRIGERATION & AIR-CONDITIONING





**Baltimore, Maryland,** service engineer reports: "‘Freon’ refrigerants help us do a better servicing job. It's dry and safe—the most dependable refrigerant on the market today."



**East Rockaway, New York,** contractor reports: "Nothing works like ‘Freon’. I'm convinced it's the best refrigerant on the market—safe and dependable for any job."



**Louisville, Kentucky,** service man reports: "‘Freon’ is the world's best refrigerant for our money. It's pure, dry and safe—never causes one bit of worry or trouble."



**Atlanta, Georgia,** contractor reports: "We've never had a bad batch of ‘Freon’ in the 25 years we've used it. It's never caused us trouble on the job or—after years of service—in a system."



**Tucson, Arizona,** service man reports: "‘Freon’ refrigerants help us do the best job possible. They're reliable and safe. Since ‘Freon’ came out, we've never used anything else."



**St. Louis, Missouri,** service man reports: "We've never had a moisture or corrosion problem in equipment charged with ‘Freon.’ It's absolutely dependable—always pure and dry."

## All over the country, users are talking about the advantages of Freon\* refrigerants



BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

BUSINESS • • • JULY 1959

East, west, north or south—contractors and service men appreciate the extra quality of "Freon" refrigerants that costs them nothing extra.

"Freon" is today's premium-quality refrigerant . . . stable, pure, dry—nonflammable, nonexplosive, nontoxic. It's time-tested—in use over 27 years and made only by Du Pont—backed by years of technical and manufacturing leadership.

Specify "Freon" refrigerants for every refrigerant need. Your Du Pont wholesaler has it—now capped in gold and factory-sealed to guard its purity till you're ready to use it.

**FREON®** *premium quality*  
**REFRIGERANTS**

\*Freon and combinations of Freon- or F- with numerals are Du Pont's registered trademarks for its fluorinated hydrocarbon refrigerants.

Circle No. 7 on Reader Service Card

## SAVE TIME— SAVE MONEY with these dependable INSULATION HANGERS

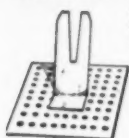


### GEMCO Spindle Hangers and W-A Self-Locking Washers

Ideal for insulation work, Gemco Spindle Hangers are easily and quickly installed... with positive adhesion to concrete, brick or metal. W-A Self-Locking Washers pressed over spindles with minimum effort and lock insulation securely in place.



### GEMCO Pronged Hangers



Designed especially for supporting various types of block insulation. Easily applied for positive adhesion. Prongs (available in various lengths from 1 1/4" to 6 1/2") bend over to hold insulation firmly in place.

### TUFF-WELD Nylon Hangers

Two-piece hangers... with bases of tough, mold nylon and spindles of metal. Made especially for smooth surfaces. Spindles snapped into bases as needed; reduces inventory, storage space, freight costs. W-A Self-locking washers hold insulation securely in place.



**TUFF-BOND** Quik-Set Adhesive (for smooth or slightly irregular surfaces) and General Purpose Adhesive (for rougher surfaces) assure permanent adhesion of hangers when used as directed. Write or wire for details and specifications.

**GOODLOE E. MOORE**  
INCORPORATED  
DANVILLE 29, ILLINOIS

Circle No. 65 on Reader Service Card

## COOL THE HELP

*Continued from page 53*

perature down by 20 F or more in this section of the restaurant. If it becomes too cool, employees can shut off the flow of water to the cooler by means of a switch.

The cooler is equipped with a two-speed exhaust fan, and a two-speed evaporative cooler fan. Anytime either of the fans are operated on half-speed, the cooler automatically switches down to half-speed.

To meet the restaurant owner's requirements for employee comfort in the main kitchen area, Maggs turned to a zone within a zone system using evaporative cooling. In combination with the movement of large masses of air, evaporative cooling has proven thoroughly satisfactory in the kitchen areas of other restaurants in Phoenix.

The kitchen has been provided with two evaporative coolers and exhaust fans which total about 5500 cfm in full operation. One exhaust fan is located over the main cooking hood and equipped with

a two-speed motor, while the evaporative cooler supplying air into the general kitchen area has a balanced two-speed unit.

To keep the kitchen area free of smoke, steam, or odors, all cooled air introduced into the kitchen through the four ceiling outlets is exhausted through the hood over the heavy-duty cooking areas.

## BOOK REVIEW

**Title:** Mechanical Refrigeration, 283 pages.

**Author:** Norman R. Sparks, Charles C. Dillio.

**Publisher:** McGraw-Hill Book Co., New York, N. Y.

**Price:** \$8.00.

Includes basic thermodynamics and principles of refrigeration. The study of refrigeration cycles and systems provides examples of applied thermodynamics. Chapters on air-conditioning and heat pumps includes material on vapor compression, with various multistage compression arrangements; solid carbon dioxide systems; multiple evaporator systems; absorption refrigeration systems; and steam-jet chilled water systems.

## THE SIGNS OF DEPENDABILITY

**Refrigeration and  
Air Conditioning**  
**RELAYS, OIL CAPACITORS  
and LEAK DETECTORS**  
Authorized Factory Distributors

Request our Catalog RC5-1

Relay Division

**MOTORS & ARMATURES, Inc.**  
31-24 14th Street • Long Island City 6, N. Y.  
Sold through WHOLESALERS only

Circle No. 66 on Reader Service Card

## Head pressure DOWN

operating efficiency  
UP

with **anco**  
condenser cleaner

**ANCO** Condenser Cleaner removes scale and rust from condensers within 2 to 15 hours, depending on scale thickness and composition. Following application, head pressure drops to normal and the condenser's efficiency is restored. Simply dissolve this dry formula in sump while system operates. It works quickly and safely and is equally effective in evaporative condensers and those with separate cooling towers. Ask your supplier about it.



SPECIALIST IN MAKING WATER BEHAVE

**Anderson**  
Chemical Company, Inc.  
Box 1424 • Macon, Georgia  
Memphis, Tenn. • Box 2432 • DeSoto Station

Circle No. 67 on Reader Service Card  
THE REFRIGERATION & AIR-CONDITIONING



Modern air-conditioned home of Kal, Ehrlich & Merrick, Washington, D.C. advertising agency

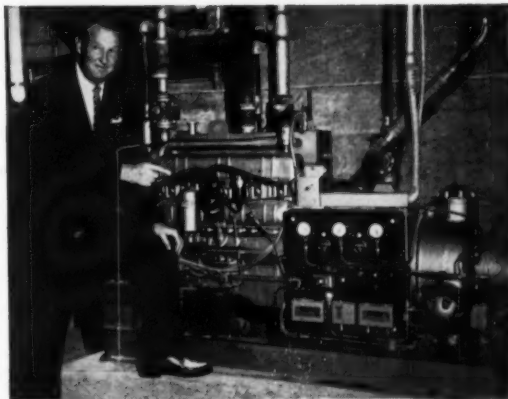
**"Nothing to do—but enjoy it,  
with our all-year READY-POWER GAS air-conditioning!"**

*Says Harry L. Merrick, Sr.  
President, Kal, Ehrlich & Merrick  
Advertising Agency*

"Only the best air-conditioning system would do for our new building, and experience proves the best is definitely gas", continues Mr. Merrick. "Our Ready-Power air conditioner gives us the exact climate control we want... and it's extremely inexpensive to operate."

Ready-Power's variable speed operation offers constant, precise control of humidity and temperature without the variations common to on-off systems. Because they combine the outstanding economy of gas fuel with automatic metering to match the load on hand, Ready-Power units have the lowest known operating costs... *less than a penny per ton per hour!*

For information on how you can benefit by installing modern Gas air conditioning equipment,



"This is our Gas-fired READY-POWER compressor. It's absolutely care-free and as thrifty to operate as we could wish."

call your Gas Company's commercial specialist or write to the Ready-Power Company, Detroit 14, Michigan. *American Gas Association.*

Circle No. 68 on Reader Service Card

## MAKE EVERY SALESMAN

Continued from page 49

him when he makes his follow-up call, because the contractor recognizes him as having authority to support the quotations he wrote;

(3) Armed with written quotations and authority, the salesman can get right to the point when he makes his sales call. Busy contractors like this.

(4) In any subsequent negotiations, the contractor needs to deal with only one person at A.C.S., the salesman, who literally is boss of the job quotation;

(5) Via the Monday morning briefing sessions, the salesman is assured of starting his week on jobs that personally interest him, and that he feels he has the best chance of selling. This is important to him because bonuses are in store on contracts won by quotations he has written;

(6) The Monday meeting also eliminates over-lap of sales effort.

Each salesman knows who is going to handle what jobs.

At Air Conditioning Supply's main office, the results of the Monday morning conferences are supplemented by a job record board that lists upcoming A.C.S. jobs and the salesman assigned to each.

In line with this policy of sales staff responsibility, A.C.S. minimizes use of local representation in cities beyond Los Angeles, although the firm markets throughout Southern California and as far north as San Luis Obispo, and east into Southern Nevada.

In addition to his Los Angeles area territory, each salesman is assigned a regional territory in which he spends two or three days each month calling upon major contractors, or one to two days a week if the regional areas are "hot". Only in Las Vegas, Nev., and San Diego are these periodic direct sales calls supplemented by sub-agencies, in each case local supply houses representing Air Conditioning Supply.

This plan enables salesmen to escape, periodically, the pressures

of their metropolitan area activity and to develop a profitable feel for construction trends throughout the company's marketing area. Also, contractors in distant cities are responsive to personal contact by salesmen who also are qualified engineers and have the authority to sit down and write equipment specifications and prices without having to refer the contractor to the home office.

### Top Pay for Top Jobs

In line with their executive responsibilities, A.C.S. salesmen are reported to receive top earnings in the western industry. Each is paid a moderate base salary plus a bonus on company gross profits. Additionally, if a salesman makes a written quotation for a job he gets a percentage of the job profit, even if his assignment has been shifted to another salesman who finally lands the contract. The company pays expenses and auto mileage when the salesman is on the road.

So in effect, each A.C.S. salesman is virtually in business for

# FIRST

in QUALITY and POPULARITY!

## florete

### AIR VELOCITY INDICATOR



x 100 FEET PER MINUTE

**\$12.90**  
FACTORY NET

The ideal pocket-size air velocity indicator; direct-reading; can be used for checking air flow through openings as small as 1/4" in diameter. Range 0-1000 ft./min. Supplied with pocket case.

**BACHARACH INDUSTRIAL INSTRUMENT CO.**  
200 N. BRADDOCK AVE. • PITTSBURGH 8, PA.

**RUSH** details on FLORET Air Velocity Indicator to

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
STREET ADDRESS \_\_\_\_\_  
CITY & STATE \_\_\_\_\_

F-29

Circle No. 69 on Reader Service Card

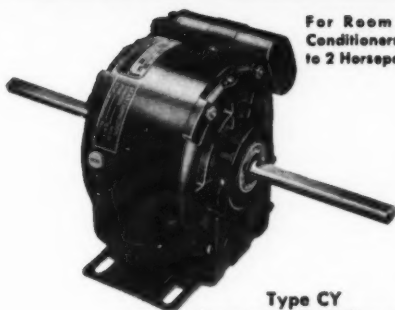


Hold on there! Back up a bit: you just rushed by some pretty important information. Before you pass this copy of THE REFRIGERATION & AIR-CONDITIONING BUSINESS on to the next reader check it over once more. Did you spot the New Products Pages? How about this month's selection of free data books and catalogs? You'll find both listed on the Contents page.

The handy Reader Service card will bring you details on any of them. Just fill it out and drop it in the mail.



# Redmond Brings You NEW { MOTORS MARKETS PROFITS



For Room Air  
Conditioners  $\frac{1}{4}$   
to 2 Horsepower

Type CY  
Permanent Split Capacitor

## Air Conditioning Replacement Motors

This permanent split capacitor motor combines high starting torque with low current requirements. Totally enclosed to eliminate moisture problems. Designed for easiest installation—resilient mounting base available where 3-inch shaft height required, and double-shaft extensions are long enough to cover all applications. "Quick Disconnects" let you put in motor and then plug in leads. Only one motor needed for both two-speed replacements and single-speed units.



The Type AY MicroMotor is your  
guarantee of customer satisfaction.

## Quietest Direct Drive Blower Motors

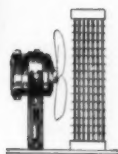
New design reduces blower vibration to one-fifth that of units using conventional shaded-pole motors

This motor gives you satisfied customers—when you replace direct drive blower motors with it you solve the problem of vibration noise. Designed and manufactured in every way to give years of whisper-quiet, trouble-free service.



Your No. 1 Condenser Fan  
Motor for Replacement in  
the Air Conditioning and  
Refrigeration Field.

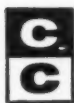
Condenser Fan Motor  
 $1\frac{1}{2}$  through 16 Watts



## Condenser Fan Replacement Motor

Shorter length makes AM-4 completely interchangeable•Stock one motor to accommodate all mountings

The Am-4 replaces all rear-mounting motors and motors with peripheral mountings. Designed for all-angle operation and all-position mounting. Extra large oil reservoir permanently sealed for life-time lubrication—guaranteed not to leak oil in use or shipment.



**Redmond DISTRIBUTORS DIVISION**

REDMOND COMPANY, INC., OWOSSO, MICHIGAN

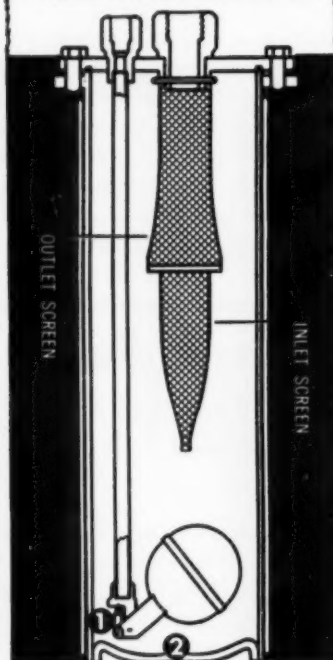
See the Yellow Pages of Your Telephone Directory for Your Local Redmond Distributor

Circle No. 70 on Reader Service Card

## BOOST REFRIGERATING EFFICIENCY AND MUFFLE SOUND with a **TEMPRITE OIL SEPARATOR**

Oil is separated from the gas before it can get into the evaporator and is returned to the compressor automatically . . .

- Full capacity of expansion valve assured.
- Evaporator heat transfer increased.
- Constant clean oil lengthens compressor life.
- TEMPRITE oil separator muffles sound.



**1 OIL RETURN VALVE:** Located ABOVE the sludge reservoir.

**2 SLUDGE RESERVOIR:** Traps sludge, oil carbon, and foreign substances, preventing their continued flow through the refrigerating system.



Complete range of capacities for refrigerants 12 and 22. ASME and UL approved.



### **8 PAGE BOOKLET ON REQUEST**

Describes many advantages of Temprite Oil Separators.



Temprite Products Corporation  
P. O. Box 72-B, E. Maple Rd.  
Birmingham, Mich.

Send me Oil Separator Booklet No. T-397

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Circle No. 71 on Reader Service Card

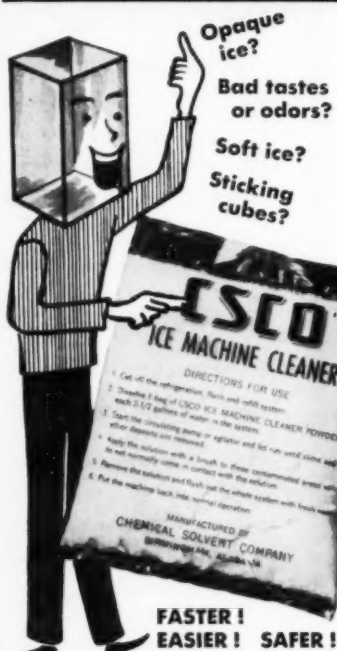
himself. In fact, says Davenport, "If we lose a salesman, it often is because he leaves to set up his own business."

To round out this unusual executive pattern, A.C.S. has assigned one engineer, Louis Horsefield, as a specialist who calls on consulting engineers and architects throughout the firm's territory. Wherever possible, he persuades consulting engineers to specify A.C.S. equipment on blueprints and specification sheets, and convinces architects that A.C.S. components and systems will be acceptable in construction projects they are planning.

This saves the salesmen special calls on these two classes of customers, and saves the engineers and architects the annoyance of being called on by several salesmen of one distributor. They know Horsefield is qualified to speak for all jobs in which A.C.S. is interested.

**YOUR WHOLESALE  
CAN SERVE YOU — LET HIM!**

## ICE TROUBLES?



See your wholesaler or write:

**CHEMICAL SOLVENT CO.**  
P. O. Box 487 • Birmingham, Ala.

Circle No. 72 on Reader Service Card

## Dealer-Distributor APPOINTMENTS

*Air Conditioning Equipment Distributors, Inc.*, has been formed to distribute packaged air-conditioning equipment and heat pumps to dealers in the Florida west coast area. The company, headed by Mark E. Mooney, will handle equipment made by **Typhoon Air Conditioning Co.** and **Typhoon Heat Pump Co.** Both Typhoon companies are divisions of Hupp Corp.

Two west coast wholesale distributors have been appointed by **Recold Corp.** Serving the entire northern California, Oregon, and Washington area is **Refrigerating & Power Specialties Co.** Also serving the northern California area is **California Refrigerator Co.**

Main office of the former is San Francisco. Its branch offices are in Stockton and Oakland, Calif.; Portland, Ore.; and Seattle and Tacoma, Wash. California Refrigeration has offices in Oakland and San Francisco.

*Western Supplier, Inc.*, of Billings, Mont., has been appointed representative in that state by Palm Brothers, Inc., Minneapolis, Minn., distributor of the **Bastian-Blessing Co.** line of soda fountain and fast food service equipment.

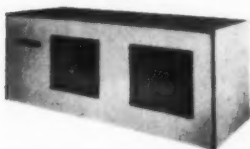
**A. W. Cash Valve Mfg. Corp.** has announced three appointments for its automatic valves. *G. Robert Parker Co.*, Denver, Colo., has been named factory representative in New Mexico and El Paso County in Texas. *Sales Engineers Limited*, Paramount, Calif., is set up as industrial factory representative for southern California, Nevada, and Arizona. The firm will serve industrial, refrigeration and the o.e.m. markets. *James A. Riordan Co.*, Los Angeles, Calif., has been selected as factory representative for southern California, Nevada, and Arizona. It will serve plumbing and heating wholesalers.

# YOU CAN PLAY BOTH SIDES WITH JUST 5 NEW GENERAL ELECTRIC AIR CONDITIONING UNITS

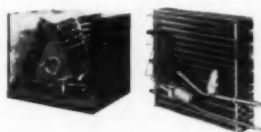


Never before has a manufacturer of air conditioning equipment made it so easy for dealers to do business.

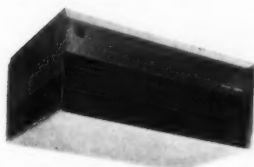
Just 5 great General Electric units, installed singly, or in multiple, permit you to meet the air conditioning requirements of all types of homes, as well as stores, offices, motels, restaurants, small plants—all types of establishments that account for over 70% of all commercial and industrial air conditioning.



**Remote condensing units**—factory-sealed—air-cooled—weather-proofed. May be placed on roof, in attic or cellar, on outside slab or shelf. Use with G-E cooling coils or air handling units. Five models—2 through 5 tons.



**Cooling coils** to convert warm-air furnaces into year 'round whole-house air conditioning. "A" type for low headroom, upflow or downflow. Flat type for upflow, downflow, horizontal. Five sizes: 24,000 BTUH to 60,000 BTUH.



**Air handling unit** includes blower, evaporator and filter. May be installed with ductwork or without ductwork using optional diffuser shown. Used with remotely installed G-E air-cooled condensing unit. 2 through 5 tons.



**Packaged cooling unit**—compact—air-cooled—self-contained. For use with or without duct. Decorative diffuser-filter frame for commercial in-space installation. Install in attic, crawl space, cellar, hallway—on roof, slab—through transom, wall. 2, 2½ and 3 ton sizes.

**PLUS...Weathertron All-Electric Heat Pump** cools without water, heats without flame. Safest method of heating and cooling ever. All automatic. Capacities, split systems 2½, 3 and 4 tons—self-contained, 2½ and 3 tons. Weathertron not available in all states.

## Consider These Advantages to You:

- Inventory storage cut to the bone.
- You're in both businesses, residential plus commercial—industrial, with both feet.
- Same installation and service men can handle both types of jobs.
- Same salesmen can prospect in both businesses.
- More "over-the-transom" business comes to you when you become General Electric Air Conditioning headquarters for all types of jobs.
- You deal with one manufacturer, one wholesaler.
- You sell the best air conditioning product made—and the best known brand name, General Electric.

For complete information on this great new General Electric line and G.E.'s Customer Satisfaction Program that makes it easy to buy and sell it...mail coupon today.

*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**

Air Conditioning Dept.—Tyler, Texas

General Electric Company  
Air Conditioning Dept.  
Tyler, Texas  
Attn.: Mr. C. B. Ramsdell

Please send me complete information on the new General Electric line and G.E.'s Customer Satisfaction Program. I specialize in:

☐ Home heating and cooling. ☐ Commercial and industrial air conditioning. ☐ Both.

Name

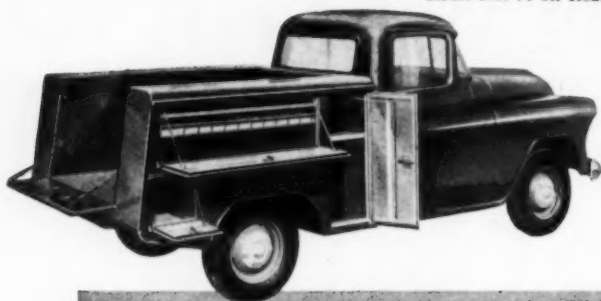
Firm

Address

City  State  Zone

County  State

Circle No. 73 on Reader Service Card



Service-Master costs so much less in the long run that it's actually false economy to settle for any other make. Here's a truck body that has class... starting with the way it's put together and ending with the way it stays together without constant upkeep through the life of several chassis. See one, go over it carefully, get all the facts, compare and you'll know why Service-Master is your very best service body buy!

**POWERS**

# Service-Master®

**TWO MODELS... FOUR SIZES**  
for 1/2, 3/4, 1 and 1 1/2 ton chassis

A standard Model SM-15 (3/4 ton) Service-Master is shown at top left. Below is the same model with a Canopy Top. All bodies are available for immediate delivery in all 48 states.



Before you buy  
any service body...

**SEND FOR THIS  
FREE 6-PAGE FOLDER**

It's loaded with  
valuable information



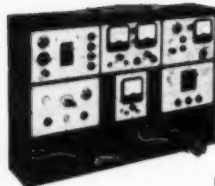
**McCABE-POWERS BODY COMPANY**  
5900 NO. BROADWAY • ST. LOUIS 15, MO.



## PUT YOUR MONEY ON AIRSERCO PRODUCTS!

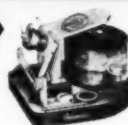
... and get **TOP-DOLLAR VALUE** in:

- Precision Measuring Equipment
- High Vacuum Pumps
- Testing Instruments
- Refrigerant Handling & Measuring Equipment



**NEW!** Hermetic  
Compressor  
Analyzer

Capacitor  
Start  
Relay



Portable  
"2 Unit"  
Charging  
Station

KC-8 R  
High  
Vacuum  
Pump



Pocket  
Sling  
Psychro-  
meter



**AIRSERCO MANUFACTURING CO.** PITTSBURGH 13, PENNSYLVANIA, U.S.A.

See your wholesaler or write us for complete catalog.



## LETTERS

Continued from page 24

figures given do not match or add up. If the averages given are to be used then please establish the basis of the curb in relation to the figures.

If the S.H. for the meat is .8, the latent heat of fusion is 107 (which I think is extremely high), and the S.H. after freezing is .4, then a pound of this product would require the removal of 248 Btu/hr. on entering the box at 45 degrees. A thousand pounds would give you a total load of 248,000 Btu/hr.

In following the chart the total load only shows a corresponding figure of 8,150 Btu/hr.

Please explain. I am very interested, since I am involved in a very intriguing problem now that is similar to this.

Problem: Product load is 600 lbs/hr of cooked beef patties, fatty contest each weighing 5 oz. Temperature into box at 90 to 100 F, summer production, to be cooled in 1 hour, to zero F.

I have used the following figures for calculation of the load: S.H. above freezing, .608; latent heat of fusion, 79.5; S.H. after freezing, .352.

BEN D. GLAZER  
Bermac Refrigeration Service Co.  
Flushing, N.Y.

In answer to Mr. Glazer, Applications Manual author Smith says:

I agree that 107 as the latent heat of fusion factor might be slightly high for meats. However, the table published with my article is not limited to meats. It takes in the entire list of commonly frozen foods. 107 was the average of some 30 fruits, vegetables and meats.

I do not agree that 1 lb. of product (.8 S.H.; 107 Heat of Fusion; .4 S.H. after freezing) equals 248 Btu/hr. Actually, it equals 131.8 per 24 hrs. The total computation is as follows:

1000 lb. x .8 S.H. x (45°-28°) =  
13,600 Btu per 24 hrs.  
to cool to freezing.  
1000 lb. x 107 H. of F. =  
107,000 Btu per 24 hrs.  
to freeze product.  
1000 lb. x .4 S.H. x (28° to 0°) =  
11,200 Btu per 24 hrs.  
to cool to zero storage.

131,800 Btu = 8,236 Btu/hr.  
16 hrs. running time

The chart shows 8,150 Btu at these conditions, or a difference of 86, which is approximately 1%. Actually, the use of 16 hr. running time gives us a 10% safety factor. Automatic defrosting equipment may easily be operated 18 hrs. daily.

As to your problem, I assume you are referring to 5-oz. hamburger patties. Personally, I would use the lean beef factors, as follows:

600 lb. x .77 x (100° - 28°)  
= 33,264

600 lb. x 100  
= 60,000

600 lb. x .4 x (28° - 0°)  
= 6,720

Total heat to be removed  
from meat = 99,984 Btu

To this must be added heat loss in the fixture, lights, people and electric load, and safety factor.

It seems to me that this problem could be handled nicely by a continuous tunnel-type freezer.

## WATSCO presents..... a brand NEW concept in strainer-capillary design STRAIN-O-KAP SENIOR®

only ONE STRAIN-O-KAP SR. for ALL  
applications ranging from  
1/3 h.p. to 1 h.p. inclusive!

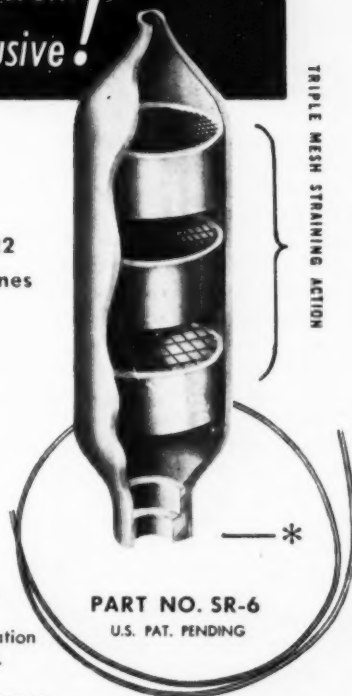
JUST ONE  
STRAIN-O-KAP SR. FOR:

- Low, medium or high temperature systems
- Use with refrigerant 12 or 22
- 1/4", 5/16" or 3/8" liquid lines

INSTALL STRAIN-O-KAP SR.  
ON ANY ONE OF THE  
ABOVE INSTALLATIONS:

- Without crimping, cutting or adding to the capillary tube
- Without special tools
- AT ONE LOW PRICE

\* The strainer is designed with a 3/8 solder inlet and includes a reducer bushing which permits solder installation on 1/4" or 5/16" liquid lines as well.



For additional information ask your  
wholesaler or send for our 1959 Catalog No. 21. Dept. B-7.

**WATSCO INC.**  
1020 E. 15th STREET • HIALEAH, FLORIDA

Circle No. 76 on Reader Service Card

## MORE INDUSTRY SALES IS AIM OF M-H PROGRAMS

Three programs aimed at increasing industry sales are being launched by Minneapolis-Honeywell Regulator Co. during 1959. First is the two furnace, two zone concept of heating which emphasizes public attention on better heating. Second is "Milady's Climate," a residential year-round air-conditioning program directed to the housewife. Third is "Operation Heat Wave" which is a follow-up of last summer's residential air-conditioning program.

The "Two's Better" program broke with advertisements in consumer magazines in May, and will continue through November. Trade magazine advertising is directed to home builders. Direct mail is being used to inform builders of the advantages of two system heating and encouraging him to contact his heating dealer.

Contractor's kits including promotion material and sales guides to assist the heating contractor in bringing the two-system story to the builder will be available for warm air and hot water heating.

A consumer booklet tells your customers the advantages and conveniences of two system heating. Booklets can be ordered from your manufacturer or from Honeywell.

"Milady's Climate" will be promoted through the use of an 18-minute color film available free through your manufacturer or the Honeywell training aid stations. The film, entitled "Mother Knows Best" is a situation comedy dramatizing the need for year-round air-conditioning, and featuring Jane Darwell, academy award winner.

Also available free is a 12-page booklet stressing the advantages of residential air-conditioning. The booklet is directed at the lady of the house and designed to acquaint her with the basic facts of year-round air-conditioning.

The third program, "Operation Heat Wave", features concentrated local advertising in 30 key cities. It is based on local newspaper advertising and a free customer offer tied-in with each town's first 84 F day after June 1.

The actual program begins the first day the temperature reaches 84 F, or any other pre-selected

temperature in the dealer's city, offering readers an inducement for immediate action. They will be offered a free survey, thermometer, filter-bag, and booklet. Equipment for the free offer will be available through regular wholesale channels. The booklet is included in the sales booster kit presented to dealers taking part in the program.

## 1,079,326 COMPRESSORS SHIPPED IN JAN., FEB.

Manufacturers' shipments of compressor bodies in the first two months of 1959 totaled 1,079,326 units, Air-Conditioning and Refrigeration Institute reports. The February total was 560,571 units, compared with 518,755 in January.

Since compressor bodies designed for use in household refrigerators are being included in 1959 for the first time, there are no comparable figures for the similar 1958 two-month period, when manufacturers' shipments totaled 644,054 units, but did not include those for use in household refrigerators.

The figures are based on reports of manufacturers whose output is estimated to be in excess of 90% of U.S. production of compressor bodies.

### Manufacturers' Shipments of Compressor Bodies

(Including units for household refriger.)

Horsepower	Shipments Including Exports (Number)	
	Feb. 1959	Jan.-Feb. 1959
1/8 HP & Under	101,363	200,843
1/6 HP		
1/5 HP	55,362	109,127
1/4 HP	117,995	226,000
1/3 HP	22,628	41,299
1/2 HP	12,108	20,308
3/4 HP	7,097	12,875
1 HP	110,599	206,396
1-1/2 HP	26,442	55,488
2 HP	31,776	66,746
3 HP	11,031	20,956
5 HP	8,296	15,561
7-1/2 HP	3,599	6,806
10 HP	1,148	2,385
15 HP	528	912
20 HP	133	259
25 HP	143	330
30 HP	89	224
40 HP	108	268
50 HP	81	169
60 HP	61	134
75 HP	31	77
100 HP & Over	16	51
<b>TOTAL</b>	<b>510,634</b>	<b>987,214</b>
For Automotive Air-Conditioning — Total	49,795	91,839
For Ammonia Refrigerant — Total	142	273
<b>GRAND TOTAL</b>	<b>560,571</b>	<b>1,079,326</b>

## NHAW ALTERS NAME TO FIT BROADER SCOPE

Delegates attending the spring convention of the National Heating & Airconditioning Wholesalers Association in Los Angeles voted unanimously to change the group's name to Northamerican Heating & Airconditioning Wholesalers in recognition of the rapid expansion of the association's Canadian membership. The word-welding employed in the new name preserves the NHAW symbol.

A resolution by the air-conditioning committee placing NHAW members on record as endorsing the Air-Conditioning & Refrigeration Institute program for certification of unitary air-conditioners also was unanimously approved.

## YORK CHARGES NEMA PROGRAM IS TOO WEAK

The reason why York Div., Borg-Warner Corp., has not joined the room air-conditioner section of National Electrical Manufacturers Association has been pointed out in a statement by Austin Rising, York vice president and director of marketing.

"We feel that there is a need for a stronger program with firmer provisions for enforcement than now exists," Rising said. "We at York are seeking stabilization of ratings which will be accepted as universal, and ratings that the consumer can depend upon. NEMA has a real opportunity to come out with a clear-cut program that will lead to consumer confidence in nameplate ratings."

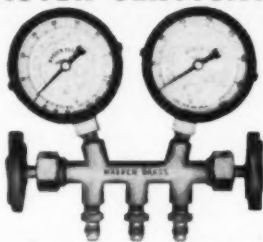
Rising charges that the program falls short because: (1) manufacturers may rate some units according to NEMA standards only to gain a reputation for compliance, and then market other models with rated capacities arrived at by other means; (2) rules for compliance and penalties for violation are not yet forceful enough to be effective.

If the NEMA program is to succeed, according to Rising, participating firms must list all units they manufacture.

**YOUR WHOLESALER  
CAN SERVE YOU — LET HIM!**

Circle No. 78 on Reader Service Card

## NEW ...FOR EASIER FASTER SERVICING



Pat. Pending

Designed for convenient charging, purging, testing etc., this new compact unit features an all brass forged body, easy-grip hand wheels, Teflon packing and seat for positive shut-off. Equipped with dual scale  $2\frac{1}{2}$  inch pressure and compound gauges. Hose connections  $\frac{1}{4}$  inch male flare, gauge connections  $\frac{1}{8}$  inch female pipe thread.



### HANDY HOSE HOLDER

Attaches to back of testing unit so free end of hoses can be conveniently coupled when not in use. Keeps them dry and free from dirt.

SEE YOUR **MADDEN WHOLESALE**



**MADDEN BRASS PRODUCTS COMPANY**  
AURORA 2, ILLINOIS, U.S.A.

EXPORT Ad Aurora 85 Broad St. New York, N. Y.

COLDIN CABINET CO., INC.  
2001 Hudson Avenue, New York 24, N. Y.

**Mr. Dealer!**  
**If You Service**  
**FOOD RETAILERS**  
**HOTELS**  
**RESTAURANTS**  
**INSTITUTIONS**  
**CLUBS**  
**with**  
**COMMERCIAL**  
**REFRIGERATORS**

Let Coldin show you the way to greater prestige and profits. The Coldin line is largest and most diversified on the market... quality cases engineered to highest specifications. Franchises are available. Send for facts and catalog.



Circle No. 77 on Reader Service Card  
BUSINESS • • • JULY 1959

## FIRST QUARTER ROSY AS SALES-SHIPMENTS GO UP

Recold Corp. has announced a sharp increase in sales of its patented "Vapomatic" vapor defrosting units for 1958 and 1959.

Sales are up 37% for the first quarter of this year as compared to the first quarter of last year. Figures further show that "Vapomatic" sales were up 35% in 1959 as compared to 1957.

\* \* \*

March shipments of Arkla-Servel gas air-conditioners passed the 1000 mark for the first time. First quarter shipments this year also broke all previous quarterly records.

Only 574 units were shipped in March of last year compared with 1090 units this past March. The highest figure for any previous month was 931.

\* \* \*

Drayer-Hanson ended the last 30 days of the 1958-59 fiscal year by racking up record shipments from the Los Angeles plant—the highest traffic in the 49-year history of the firm. The fiscal year ended was over last March 31.

The percentage figure shows some 34.8% increase over the previous high figure, a year ago. The analysis covers Drayer's commercial air-conditioning product.

Other volume records were chalked up during the fiscal year including gross sales and profits.

\* \* \*

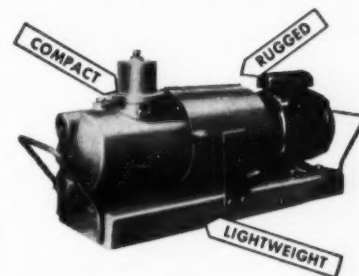
Record sales and shipments of air-conditioning equipment have been reported by Acme Industries, Inc., in the third quarter of its fiscal year ending April 30. Unfilled orders at April were 42% higher than a year ago.

Net sales for the first nine months were \$6,486,330 and net earnings after estimated income taxes were \$152,891 or 38 cents a common share. This compares with net sales of \$5,930,608 and net earnings of \$126,470 or 31 cents a common share for the corresponding period of the previous fiscal year.

**YOUR WHOLESALE  
CAN SERVE YOU — LET HIM!**

for  
**DEHYDRATING**  
and  
**TESTING...**

## BEACH-RUSS Portable VACUUM PUMPS



Beach-Russ Portable Vacuum Pumps are designed specifically for dehydrating and testing refrigeration and air conditioning units. These high performance, quiet operating, portable pumps are available in two sizes:

- **Model A Two-Stage Pump**  
—2.5 cfm,  $\frac{1}{8}$  HP, weight 80 lbs.
- **Model O Single-Stage Pump**  
—1 cfm,  $\frac{1}{8}$  HP, weight 48 lbs.

Beach-Russ Vacuum Pumps are also made in types and sizes for evacuation and testing of refrigeration equipment on a production basis.

**BEACH-RUSS COMPANY**  
620 D GRAYBAR BUILDING  
NEW YORK 17, N. Y.

Send descriptive literature covering  
☐ Model O Single-Stage Vacuum Pumps  
☐ Model A Two-Stage Pumps.

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The ORIGINAL LIQUID Ice Machine Cleaner. Works fast yet safely. Produces FRESH SMELLING flakes and cubes.

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At how easy it is to keep your mechanics profitably employed all year repairing hermetic compressors with a FRANKELL HERMETIC COMPRESSOR OPENER. Keep your shelves filled with rebuilt units so that during the busy season you can do more jobs in less time at a greater profit. A FRANKELL HERMETIC COMPRESSOR OPENER opens any hermetic compressor up to 20" in diameter. No special jigs or skill required.

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To the ring of profits the year 'round. Remember, when you repair hermetic compressors, the profits are big. So ACT NOW! Only \$695 Ex Factory. Ask about our rental plan. Export facilities.

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## Dealer-Distributor APPOINTMENTS

Two appointments have been announced by **Taco Heaters, Inc.**, covering the states of Minnesota, North and South Dakota, and western Wisconsin. **R. M. Cotton Co.**, Minneapolis, is distributor for Taco's commercial and industrial products. **Sales Engineers**, also of Minneapolis, will distribute the firm's stock items.

**Drayer-Hanson** has split-up its Pacific Northwest territory, allowing two separate sales agent firms to serve it in that sector.

Named to represent D-H in the Greater Spokane area is **General Equipment Co.**, Spokane.

Long functioning for Drayer-Hanson in the Pacific Northwest is **Pacific Monitor** under Bill Walsh of Seattle. Territory priorly has included states of Washington and Oregon and Canadian provinces,

British Columbia, Saskatchewan and Alberta.

Principals of General Equipment are Hobart Teneff and James Hutsinpillar. D-H sales engineer Irving Secord will service the new agent.

**Russell Sales Co.**, Santa Fe Springs, Calif., has been named by **Du Pont Co.** as a sales agent for its "Freon" refrigerants to the wholesale trade.

Russell will work with Du Pont's "Freon" Products Div. and its only nationwide sales representative, Virginia Smelting Co., in servicing wholesale accounts in Arizona, California, Idaho, Nevada, Oregon, Utah, Washington.

**Sunset Electric Supply Co.**, New York City, has been appointed wholesale distributor for room air-conditioners for **Airtemp Div.**, Chrysler Corp. The recent appointment of **Apparatus Distributors, Inc.**, completes Airtemp's plans for independent distribution of the company's air-conditioning and heating products in the New York area.

Edward Goldberg is president of Sunset, 50 years in business. Thomas J. Hodgins, former vice president of Vornado Distributing Co., Inc., New York, is vice president.

**Liquid Freeze Corp.** has announced the appointment of two distributors. **Wilderman Refrigeration Co.**, Seattle, Wash., will cover the northwest part of the state of Washington. **Peerless Pacific Co.**, Portland, Ore., will serve the entire state of Oregon.

**Worthington Corp.** announces the appointment of **Warren Plumbing Supply Co.**, Detroit, Mich., as distributor in the eastern half of Michigan for its line of air and water packaged air-conditioners with capacities of 3 to 30 hp and packaged water chillers.

James Hinckley, former field representative of Worthington, becomes manager of the air-conditioning and heating division of Warren.

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**Smoothly Bends ANY  
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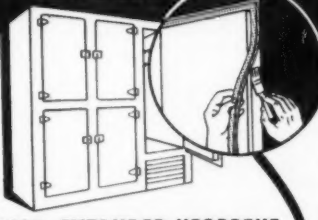
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BALTIMORE, MD., Baltimore Refrig. Supply Co.  
Crown Refrig. Supply Co.  
Kleinman Bros. Inc.  
Regent Equipment & Supply  
Roche & Hall, Inc.  
BATON ROUGE, LA., Acme Refrigeration  
Atlas Refrigeration Supplies  
BOSTON, MASS., A. E. Borden Co., Inc.  
CHARLOTTE, N. C., Henry V. Diek & Co., Inc.  
CINCINNATI, OH., Ebermann Supply Company  
Mason Supply Co.  
CLEVELAND, OH., Cleveland Hermetic & Supply Co.  
COLUMBIA, S. C., Henry V. Diek & Co.  
COLUMBUS, OH., Mason Supply Company  
DALLAS, TEXAS, Central Engineering & Supply Co.  
DAYTON, OH., W. H. Kiefer Co.  
DENVER, COLORADO, Refrigeration Dist. Corp.  
GREENVILLE, S. C., Henry V. Diek & Co.  
GULFPORT, MISS., Paine Supply Co.  
HAGERSTOWN, MD., Roche & Hall, Inc.  
HOUSTON, TEXAS, Leatherwood Supply Co.  
Lingo Co., Inc.  
INDIANAPOLIS, IND., Central Supply Co.  
Duncan Supply Co., Inc.  
JACKSON, MISS., Mississippi Refrig. Supply Co.  
Paine Refrig. Supply Co.  
KALAMAZOO, MICH., Tony's Refrigeration Co.  
KANSAS CITY, MO., Refrigeration Equipment Co.  
KNOXVILLE, TENN., Lohr Engineering Co.  
LAFAETTE, IND., General Refr. Supply Co., Inc.  
LAFAETTE, LA., Standard Brass & Mfg. Co.  
LAKE CHARLES, LA., Solar Supply of Lake Charles  
MEMPHIS, TENN., Budlock Refrig. Supply Co., Inc.  
R. H. Spangler & Co., Inc.  
United Refrig. Supply  
MIAMI, FLORIDA, Ace Refrigeration Supply, Inc.  
Dade Service Corp.  
MILWAUKEE, WISC., Wisconsin Refr. Supply Co.  
MINNEAPOLIS, MINN., Tem-Trol Corp.  
MOBILE, ALA., Refrigeration Supply Co.  
NEW YORK CITY, N.Y., Ahee Refrigeration Supply  
Peter Blasco Company  
Schwartz Supply Co.  
NEW ORLEANS, LA., Acme Refr. Supply Co.  
Nola Sales Co., Inc.  
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Williams & Co., Inc.  
PORT ARTHUR, TEXAS, Standard Brass & Mfg.  
PORTLAND, OREGON, B & W Supply Co.  
Johnstone Supply Co.  
W. L. May Co., Inc.  
Peerless Pacific Co.  
Refrigerative Supplies Inc.  
PUEBLO, COLORADO, J. F. Damman Supply Co.  
RALEIGH, N. C., Henry V. Diek & Co., Inc.  
SALISBURY, MD., Roche & Hall, Inc.  
SAN FRANCISCO, CALIF., Hinsaw Supply Co.  
California Refrigerator Co.  
SEATTLE, WASHINGTON, Thermal Supply  
TULSA, OKLA., Palmer Supply Co.  
TUPELO, MISS., Paine Supply Corp.  
WASHINGTON, D.C., Aircoo Supply Inc.  
Refrigeration Supplies Co., Inc.  
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BUSINESS • • • JULY 1959

## OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," \$4.50 minimum, limit 25 words. For all other classifications, \$8.00 minimum for 25 words or under, each additional word 20¢. Boldface type or all capitals, \$10.00 minimum for 25 words or under, each additional word 25¢. All classified advertising payable in advance.

**SODA FOUNTAIN & CARBONATOR PARTS**, All makes, replaced new, repaired or exchanged, 24 hour shipment, factory guarantee, Trade discounts to servicemen & dealers. Catalog \$2.00, refundable. **MACON FOUNTAIN SERVICE**, P.O. Box 864A, Macon, Ga.

#### FRED HEANEY HEADS OIL HEAT INSTITUTE

Fred W. Heaney, president, Skaggs-Walsh, Inc., Long Island City, N. Y. has been elected president of the Oil Heat Institute of America. The election took place at OHI's 37th national convention, held in Seattle, Wash.

Other officers elected include: G. M. Marin, president, Sun-Ray Mfg. Co., re-elected vice president from the manufacturer div.; Stanley Czarnecki, president, Eddington Metal Specialty Co., re-elected vice president from the accessory div.; and T. R. Loizeaux, Sr., president, T. R. Loizeaux Fuel Co., Plainfield, N. J., was elected vice president from the distribution.

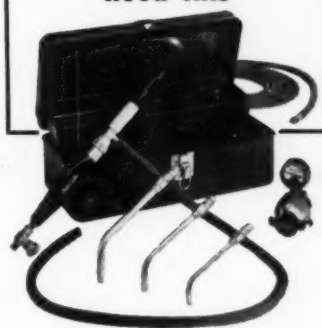
The new executive committee of OHI consists of, in addition to the officers, the following persons.

From the manufacturer division: Walter E. Blake, sales manager, Heating and Air-Conditioning Div., Stewart-Warner Corp.; Lewis J. Cox, president, Iron Fireman Mfg. Co.; R. J. Lucas, vice president, Toridheet Div., Cleveland Steel Products Corp.; and J. Verne Resek, president, Industrial Combustion, Inc.

From the accessory div.: C. W. Lang, sales manager, Sundstrand Hydraulic Div., Sundstrand Machine Tool Co.; Larry D. Sibley, vice president, Combustion Control Div., Electronics Corp. of America.

From the distribution division: Everett Elliott, president, C. L. Elliott Co., Danvers, Mass.; and Lavern Schaezel, president, Schaezel Oil Co., Germantown, Wisc.

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when you  
need this



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TRADE-MARK

#### Refrigeration & Air-Conditioning Outfit

When your customers want service, you'll need this complete leak detecting, soldering, heating, and brazing outfit—all in a handy steel case. It gives you

... **JOB-MATCHED OPEN FLAMES**  
Fine, light, and medium torch stems—  
instantly interchangeable—for refrigeration and air-conditioning jobs.

... **SENSITIVE LEAK DETECTOR**  
Shows up as little as 100 parts per million of refrigerant gas in air—locates leaks too tiny to find with soapy water.

... **PRECISION CONTROL**  
Acetylene regulator automatically maintains selected delivery pressure—calibrated screw for flame adjustment.

... **EASY TO USE**  
Detector is simple and positive—soldering and heating torch concentrates flame where needed—everything in one compact case!

Outfit includes torch handle, leak detector stem, 3 torch stems, regulator, 12½-ft. hose assembly, suction hose, and enameled steel carrying case. Complete (for B or MC tank), \$41.00.

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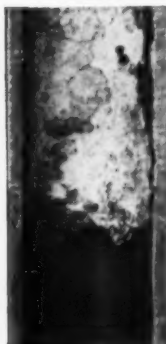


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**HIGH HEAD PRESSURE**  
the FAST, SURE, SAFE way with  
**►SURE KLEAN►**

**NUM 1**

## Air-Conditioning Plant Cleaner!

Cleaning air-conditioning towers, coils and condensers now EASY!



Actual photograph of scale-encrusted pipe from air-conditioning system. Cut in two, lengthwise, then one end dipped in Sure Klean No. 1.

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New unbreakable, lightweight polyethylene package (1-gal., 5-gal.), with convenient hand grips, is easy to carry up ladders to towers and other hard-to-get-to places. Also available in 15, 30, 55-gal. drums.

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1040 Chelsea Trafficway Kansas City, Kansas

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